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July 1957

office management

the magazine for management executives

Even selection of forms is simplified in Trinity order processing system. (See story, page 23)

in this issue

- Six month report: trends and events in the first half of 1957
- How a twenty-five employee office automated order processing
- Why your mailroom may be your most expensive department

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INVITE CUSTOMERS TO CALL COLLECT. A Richmond, Va., parts distributor asked all his dealers to telephone their orders collect. In a very short time, business amounting to more than $2600 has been traced to out-of-town calls.

CALL CUSTOMERS BETWEEN VISITS. Salesmen for a Chicago jewelry wholesaler—one of the nation's largest—call out-of-town customers regularly between trips. Personal contact is maintained. And many sales are closed by telephone.

MAKE APPOINTMENTS IN ADVANCE. Salesmen for a Seattle electrical equipment manufacturer telephone out-of-town prospects before going to see them. This idea helps six men cover 800,000 square miles of sales territory.

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office management

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in this issue:

Our ambition and our hope *(Editorial)* 19

Six month report: trends and events in the first half of 1957 20
by Robert M. Smith

How a twenty-five employee office automated order processing procedures 23
by Frederick Vogel

Why your mailroom may be your most expensive department 26
by W. D. Sullivan

Audience participation keys NOMA meeting (conclusion) 28

Spectacular new offices mark merger of two famous New York banks 31

Automation in the office 34

Semi-annual index, January-June, 1957 36

Tools of the office series
This month: Equipment for "Automation in the office" 40
by Robert Beeman

Production control problem solved by use of single selective data duplicator 74

TOO often small offices assume that "automation" is not for them; their instinctive reaction to the word is a picture of vast and expensive machines. This reaction, while natural, overlooks completely the fact that automation is a way of doing things, rather than a particular machine, and that a small office can achieve a significant degree of automation with relatively simple equipment. For the story of one that did, see page 23.

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Census Bureau orders two Univacs

Two Remington Rand Univac Scientific computers, to constitute the nucleus of the electronic equipment to be used in tabulating the 18th Decennial Census of the United States scheduled for April 1960, have been ordered by the Bureau of the Census, U. S. Department of Commerce.

The new computers will replace two older Univacs, one of them the first ever built and used initially during the final stages of the 1950 Census tabulations. As soon as they are delivered, the new models will be employed in the regular current work of the Bureau, and in 1959 they will be used to tabulate the results of the 1958 Censuses of Business and Manufactures.

Installation of the new computers, the Bureau states, will represent the first time that scientific-type computers have been selected purely for a data-processing assignment. The computers will be built at Remington Rand Univac facilities at St. Paul, Minn.

NOMA submits new office standards

The National Standards Committee of the National Office Management Association has introduced three new office standards for consideration and use by members as well as others who can benefit.

First is a revision of Office Lighting Practices, originally issued in 1952 as a complete booklet on the subject as prepared by the Illuminating Engineering Society five years previously. The recommendations were revised by the IES in 1955, prompting the new 32-page NOMA standard booklet.

Second standard is a guide for the selection and use of carbon papers of all varieties, and the final standard encourages the limiting of ring, memo, and post binders in general use to fewer standard sizes so that resulting production and distribution economies may be passed on to the consumer.

Use of standards, NOMA advises, is voluntary, although they will lose value without use. Mass use of binder specifications, the association continues, is required to produce full value.

Copies of most standards are 25 cents each, with a 50 per cent discount for members. Further information may be obtained from NOMA's headquarters in Willow Grove, Penna.

Johns-Manville Permacoustic Ceiling in the Penn Center Office of The Philadelphia National Bank, Philadelphia, Pa. Architect: James S. Hatfield and Lloyd Malkus Assoc.

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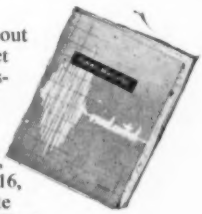

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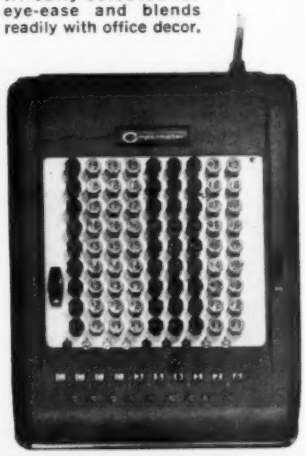

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In Short—

Upsurge of interest in Operations Research predicted

A prediction that operations research "will be a part of every major business within 10 to 15 years" was made recently by David B. Hertz, manager of operations research for the New York accounting firm of Arthur Andersen & Co. Addressing members of the Knickerbocker Chapter (New York) of the Systems & Procedures Association of America, Mr. Hertz disclosed that at least 500 corporations "have or will have soon their own operations research groups," adding that this figure becomes even more outstanding "when one recalls that the total of such groups about 10 years ago was zero." Reasons for the growth of interest in OR, Mr. Hertz continued, are three-fold: "It answers specific questions for management; it can provide a methodology, as well as methods, for making decisions; and, most important of all, the spill-over of this type of thinking is being absorbed by all levels of management." At the meeting, John Conneely was elected to succeed Charles E. Redfield as chapter president for 1957-58.

Professional accountants' organization changes name

The American Institute of Certified Public Accountants is the new name for the former American Institute of Accountants, President Marquis G. Eaton has announced. "Since membership in the Institute is limited to those accountants who have been granted CPA certificates by their respective states," Mr. Eaton said, "it was felt that the name of the CPA's national professional society should highlight the importance of certification and emphasize the responsibility which the Institute assumes when it speaks or acts." Membership in the Institute now approximates 30,000.

New officers elected by Office Executives Association

Earl G. Bunce of the Dyestuff and Chemical Division, General Aniline & Film Corp., was elected president of the Office Executives Association of New York, Inc. at a recent meeting of the organization. Aiding him as executive vice president will be Arthur

(*To page* 12)

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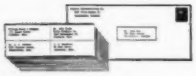

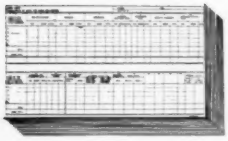

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B. Richmond of Burlington Industries, Inc. Other officers elected to head the association—the New York chapter of the National Office Management Association—include: Peter S. Verwys of the National Board of YMCA's, re-elected treasurer, and Rudolph Lang, managing director of the National Business Show, re-elected secretary.

Air Asssociates changes name to Electronic Communications, Inc.

New corporate name of Air Associates, Inc., Teterboro, N. J., is Electronic Communications, Inc. The new name was adopted because of recent expansion of company activities in the field of electronics, President F. W. Godsey, Jr., has stated. Use of Air Associates in the title of the division dealing with supplies and accessories for the aircraft industry, known previously as the Aviation Supplies Division, will be retained. This division will be known as the Air Associates Division of Electronic Communications, Inc.

Pitney-Bowes' president to head medical education fund raising division

Walter H. Wheeler, Jr., president of Pitney-Bowes, Inc., has accepted the chairmanship of the Office Equipment Division of the National Fund for Medical Education, Colby M. Chester, chairman of the Fund's Committee of American Industry has announced. The committee is spearheading a nationwide drive to raise $10,000,000 each year for the country's 82 accredited medical schools.

Division of Burroughs Corp. sets one-month shipment record

Recent shipment by the ElectroData Division of Burroughs Corp., Pasadena, Calif., of six Datatron electronic data processing systems totaling about $1,600,000 set a new one-month record for the division. ElectroData has installed a total of 147 computers, including the large Datatron system and the desk-size E101, on a nationwide basis, the division reports.

Shorter work week appears inevitable, speaker declares

Eugene J. Benge, management consultant, stated recently that the "shorter working week seems inevitable." Addressing the 18th Ohio Personnel Institute at Ohio State University, Mr. Benge continued: "Large, profitable companies subject to automation are likely to concede a 35-hour week within the next few years." A four-day, 32-hour week, however, "seems pretty

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far off; and employees in utilities and service industries will lag behind manufacturing employees in achieving a shorter work week," Mr. Benge predicted.

American Photocopy Equipment Co. becomes a publicly owned company

Through issuance recently of 200,000 shares of common stock, the American Photocopy Equipment Co., Chicago, entered the ranks of publicly-owned companies. The issue was over-subscribed within a few hours after being placed on the market. Shares originally were offered at $13.50 each. President Samuel G. Rautbord said the company plans immediately listing the stock on a major stock exchange; meanwhile, the shares will be traded over-the-counter.

Office firms merge, expand; others announce moves

International Business Machines Corp.

Headquarters of the Data Processing Division, International Business Machines Corp., will be moved in two stages from 590 Madison Ave., N. Y., to new buildings to be constructed on a portion of a company-owned 440-acre tract in Armonk Village, N. Y. Completion of the move is scheduled for 1959. IBM's corporate headquarters, however, will remain in New York City.

The company also has announced opening of its first Radioisotope Laboratory. Located at IBM's Product Development Laboratory in Endicott, N. Y., the new facility will utilize the latest techniques to study and analyze components of the company's data processing machines.

Joseph Dixon Crucible Co.

Merger of the Joseph Dixon Crucible Co., Jersey City, N. J., with the American Crayon Co., Sandusky, O., two of the oldest corporations in the nation, has been completed by the filing of appropriate papers in the states of New Jersey and Ohio. American Crayon is now a division of the Dixon company.

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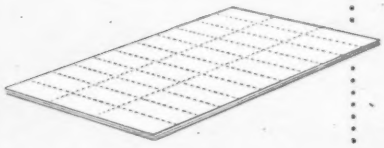

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Books and Pamphlets

Who's Who in the Computer Field (1957), available from the publishers of *Computers & Automation* magazine, contains entries for more than 12,000 computer specialists, including 4,500, or 60 per cent more names than for 1955. Each person listed has outlined his own personal appraisal of his computer interests, segregated into nine different categories. Due to a sizable pre-publication subscription, the publishers announce, only 400 copies are available for the business world. Cost of the volume, totaling more than 200 pages, is $17.50, and copies may be obtained from the magazine, 513 Avenue of the Americas, New York.

Office Equipment: Buy or Rent? Published by Management Analysis Center, Inc., this special 92-page report was written by Dr. Robert N. Anthony and Samuel Schwartz, members of the Harvard Business School faculty. It discusses factors usually considered in deciding whether buying instead of renting an item of office equipment would reduce costs sufficiently to warrant the investment required. Particular emphasis is placed on such factors as the estimated useful life of the equipment, required earnings rate on the investment and the impact of income taxes. The report, priced at $15, may be ordered from the Center, 275 Newbury St., Boston, Mass.

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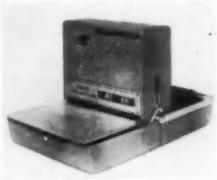

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Take a good look around your office tomorrow and see all the clutter on top of desks. A lot of valuable *space and time are being lost* there.

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Fully 75% of the things that drift around on other desks have a *specific place inside* this desk.

In the *organized drawers* there are *off-the-desk* trays for incoming, outgoing and pending letters, *off-the-desk* space for work organizers, work separators, deferred projects, tickler, binders, books, pads, forms, card lists. And imagine this—there's even an *in-drawer* wastebasket and *in-drawer* phone!

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See these new "Clutter-Proof" Desks at our branch or dealer store, or write Shaw-Walker, Muskegon 72, Mich. for our 252-page Office Guide.

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Coming Events

Columbia U. Executive Program in Business Administration. Harriman. N. Y., June 16-July 27.
Sponsor: Graduate School of Business, Columbia University. *Place*: Arden House.

NSA Annual Convention. St. Louis, July 17-20.
Sponsor: The National Secretaries Association (International). *Place*: Sheraton-Jefferson Hotel.

Seminar on Establishing Company Programs for Reduction and Control of Office Costs. Chicago, July 22-26.
Sponsor: Frank M. Knox Co., Inc. *Place*: Abbott Hall, Northwestern University.

Columbia U. Executive Program in Business Administration. Harriman, N. Y., August 11-September 21.
Sponsor: Graduate School of Business, Columbia University. *Place*: Arden House.

ACME General Meeting. Hot Springs, Va., September 12-15.
Sponsor: Association of Consulting Management Engineers, Inc. *Place*: The Homestead.

NRMC 4th Annual Conference on Records Management. New York, September 19-20.
Sponsors: National Records Management Council, Inc.; Graduate School of Business Administration, New York University. *Place*: New York University.

NIGP 12th Annual Conference and Products Exhibit. Cincinnati, October 6-9.
Sponsor: National Institute of Governmental Purchasing, Inc. *Place*: Hotel Netherland Hilton.

SPA International Systems Meeting. Los Angeles, October 7-9.
Sponsor: Systems & Procedures Association of America. *Place*: Statler Hotel.

NABAC Conference. Atlanta, October 7-10.
Sponsor: National Association of Bank Auditors and Controllers. *Place*: Atlanta Biltmore Hotel.

RSPA General Meeting. Chicago, October 8-10.
Sponsor: Railway Systems & Procedures Association. *Place*: Morrison Hotel.

SAM Conference on Progress in Measurement of Management. October 24-25.
Sponsor: Society for Advancement of Management, Inc.

AICPA Annual Meeting. New Orleans, October 26-31.
Sponsor: American Institute of Certified Public Accountants (new name of the American Institute of Accountants, as of June 1). *Place*: Roosevelt Hotel.

National Business Show, New York, October 28-November 1.
Sponsor: Office Executives Association of New York (New York Chapter of the National Office Management Association). *Place*: New York Coliseum.

CIA Annual National Conference. White Sulphur Springs, W. Va., November 1-4.
Sponsor: Controllers Institute of America. *Place*: Greenbrier Hotel.

Electronic Business Systems Conference. San Diego, November 7-8.
Sponsor: Western Division, National Machine Accountants Association. *Place*: U. S. Grant Hotel.

with the EDITORS

OUR lead article this month discusses the charges of an increasing number of critics that American business has become so infatuated with science that it is trying to apply "scientific methods" to human problems and areas where science, for all its effectiveness in more easily controlled situations, is sometimes far less reliable than the apparently haphazard but surprisingly reliable paths of intuition.

UNEXPECTED evidence has come to bolster their contention—from Hollywood, whose generally picturesque character since its establishment as the movie capital has apparently been made even more colorful by the emergence of TV. At any rate, one of the daytime TV programs out there had the bright idea of identifying and bringing together a perfect couple by matching characteristics of several thousand candidates of the requisite sexes until a perfect match in terms of interests, background, etc. was found. And of course, what better way would there be to bring together one ideal man and one "only girl in the world" than to have the data on all entrants checked and matched by electronic computer?

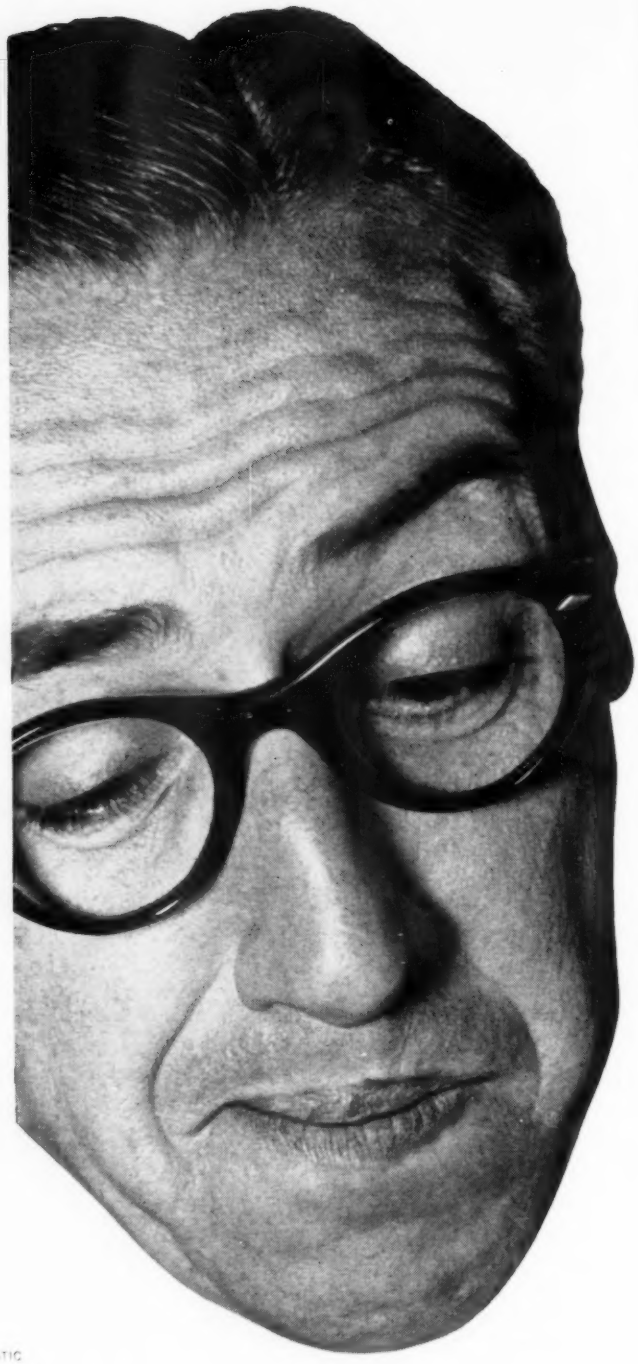
REM RAND'S Univac was picked for the job, and diligently began comparing interests, favorite foods, tastes in reading and—undoubtedly—TV programs, theories as to who should wash the dishes, etc.

THE ideal couple was located easily enough by the big machine, and both parties were immediately brought together by the powers of the TV world. It was love at first sight—or at least complete identification of interests. To the delighted drumbeating of network press agents, mutual interests blossomed into romance, an engagement ring, and the setting of a date. Apparently Shakespeare had been premature—the course of true love can run very smooth if you just have a Univac to bring the right parties together.

BUT then it began to seem that Shakespeare had been right after all, and that the Univac, which can predict election results without an electronic tremor, and with only a minute degree of error, is as fallible as every other known device when it comes to anticipating any event or reaction in the area of romance. At last reports the lady in the case had returned the ring, and had publicly announced that machines were all right in their way, but were not to be trusted when they ventured beyond the more mundane assignments of business or research—computing engineering figures, calculating payroll, predicting elections, or perhaps, helping design a new airplane or rocket. For any skirmishes in the infinitely complex battle of the sexes her credo has become: "The old fashioned methods are the best."

Robert M Smith
Editor

"Simple? Even the chairman of the board runs it!"



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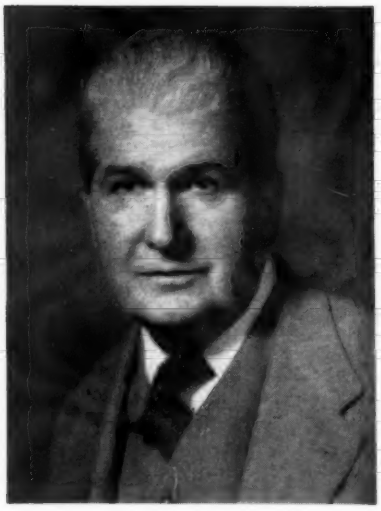
editorial



Our ambition and our hope

AS THIS MAGAZINE enters its seventeenth year, the man who guided it editorially through its formative years, its adolescence, and its maturity, resigns from us to devote all of his time to the purely creative writing that has been his ambition for the past several years.

Thomas Vincent Murphy, editor-in-chief of this magazine, and its sister Geyer-McAllister publications, *Geyer's Dealer Topics* and *The Gift and Art Buyer,* has resigned his post as of the first of July.

It goes without saying that he will be missed, both by his immediate editorial colleagues, and by all the other members of the organization in which he has played a leading role for so many years. However, his great fund of experience and knowledge of the field which this magazine covers will still be available to us, since Mr. Murphy has agreed to serve in the capacity of consulting editor to all Geyer-McAllister publications. Thus, he achieves freedom for the interest that has become increasingly important to him within the past few years, while we are not completely divorced from the benefit of his advice and counsel in our editorial future.

Robert M. Smith, who has been editor of this magazine for the past two years, will assume the duties of editorial director of all Geyer-McAllister publications, while continuing to serve as editor of *Office Management.* Walter A. Kleinschrod, managing editor of *The Gift and Art Buyer,* and George A. Tice, managing editor of *Geyer's Dealer Topics,* each become editor of their respective publications.

There is little we need to say about Thomas V. Murphy to the readers of this magazine. The magazine itself says it more eloquently than we can. It is his product; its great growth in the years since its creation, and the solid position of respect it has won in the business world are the best possible testimonials to Tom Murphy's qualities as an editor and as a man.

We salute him; we wish him luck; and we emphasize now our ambition and hope: to live up always to the standards of editorial excellence and integrity he established, and has always maintained.

The drive toward uniformity may reduce the level of our operating executives to a common denominator which, while not the lowest, is not the highest possible.

Six month report—trends and events in the first half of 1957

Reaction against "over conformity," overemphasis on group thinking, group actions at expense of individual initiative, appears to be gaining ground and adherents—

by Robert M. Smith

THE FIRST SIX months of 1957 have been a continuation of a pattern that has become almost an accepted way of life in America, as though no other had ever existed or ever would again. Jobs are still plentiful, an almost visible aura of prosperity cloaks every part of the country, the worst tangible internal crises exist in areas where facilities do not match people's demands—schools, roads, housing.

In such an era, a time when things run on much as they have before, when people by and large are content with their lot, trends are usually more significant than particular events. Prosperity breeds few dramatic incidents. But a time of tranquility is a good atmosphere for reflection and analysis. And these we have had in increasing measure during the past six months — reflection and analysis about the current state of American business, not in terms of the economy, not in terms of production, not in terms of efficiency, but in terms of the relationship existing between any company as an entity — an organization — and the people who are that company.

Perhaps the three most significant trends discernible in the business picture during the past six months, all of which seem unrelated, even contradictory at first, but which have a significant bearing on each other when analyzed, are:

Increased emphasis on the necessity of long range planning for those responsible for guiding a company.

Increased emphasis on the importance of the decision-making process for all those in executive positions.

The chorus of voices proclaiming that a deep-rooted change is occurring within the "executive character" — and that it isn't a healthy change.

This last is perhaps the most significant trend of 1957—and it may well be the most significant trend discernible for a much longer period than that. A great many people—too many people—too many to be dismissed—are having a great many second thoughts about the inner workings of business today in terms of the effect on the individuals who make up the executive level of business.

We are hearing a lot today about conformity, and its dangers. This is a convenient term, a catch phrase almost. But the emphasis on it does represent a deep seated and rapidly growing uneasiness about the entire trend of our society. And the source of all this is being identified as the individual businesses to which men and women attach themselves.

Nor is this merely anti-business propaganda, spread by a few malcontents. Its most outstanding exponents are themselves representatives, or at least basically sympathetic reporters, of business. *Fortune* Magazine, which is scarcely a journal of the extreme left, is home base for William H. Whyte, Jr., the author of "The Organization Man", the most persuasive, the most thorough, and the most widely read of the analyses of the trends that are presumably hammering Americans into a mold—and a rather mediocre mold at that. *Fortune*, too, has published other articles by other authors betraying the same disquiet.

Critics charge too much of the "team" approach is already hurting business

Case for the prosecution

Certainly there is plenty of evidence that these writers, although they may not be entirely right in their fears, are not simply conjuring up images. The drive toward uniformity within businesses, the emphasis on everyone coming closer and closer to a certain single — and somewhat arbitrary — pattern, is all too apt to reduce the level of our operating executives to the least common denominator — or perhaps more accurately a common denominator which is not the lowest possible, but is not the highest possible, either. And, from the opposite end of the telescope, this is not even beneficial to the business to whose supposed needs these executives are trying to conform. Innovations and progress do not come from the average man; they come from the exceptional man. If the business community excludes him, the business community will be the eventual loser.

This poses a problem for society and the individual, for as "The Organization Man" so eloquently points out, it is a failure in people if they surrender to pressures, rather than a fault in an "organization" when it creates pressures. But it also poses a problem to business, for, insofar as business rejects people who will not conform to the pressures, business defeats its own eventual good.

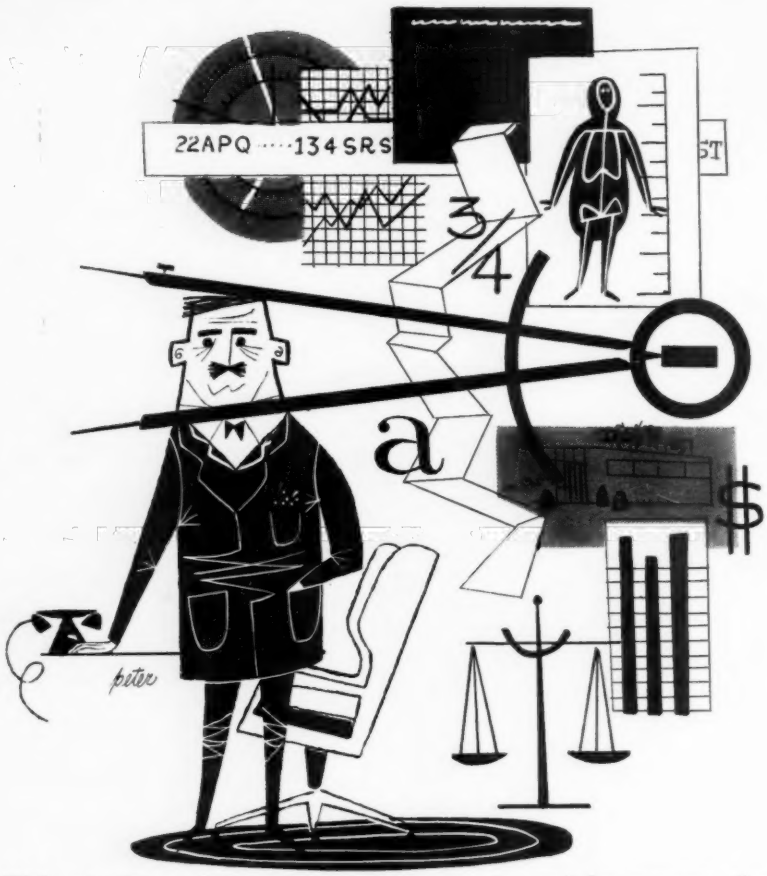
Two main trends are identified by the author of "The Organization Man" as already handicapping business: a trend toward overemphasis on the "team approach" to every problem, and a trend toward what he terms "scientism", the application of the trappings and terminology of science to situations not basically to be evaluated by scientific means, and the drawing of wholly false conclusions from these applications.

That these trends can be a danger to the future of a business is a point that cannot be well denied even by those who will not agree with any of the other premises of those prophets who seem so radical because they seek a return to earlier American individualistic values, or at least a balance between those earlier values and the new ones. Anyone who has ever served on a committee has sometimes at least had the very earnest feeling that whatever the committee's project it could be accomplished more quickly and more effectively by giving one man or woman responsibility and letting him work for results — and stand or fall by results. Yet we see more and more of our business decisions, even our basic business research, being turned over to "teams", and teams moreover in which cooperation and good relationships are very often more prized than results.

And most of us, too, have had experience with application of "scientific methods" to areas in which scientific methods are not necessarily applicable at all. We are all familiar with the dazzling use of measurements to prove points that are not necessarily valid and are certainly not made valid by the application of statistical methods to qualities not measurable by statistical means in the first place.

This latter problem is aggravated by a peculiarly American characteristic — our reverence for specifics and techniques. The "expert" is often treated with an exaggerated respect by otherwise hardheaded men; any process which seems to have some sound scientific basis is perferable to a less tangible process — even if the latter usually produces better results. Thus, even situations where scientific methods may have some slight application — if taken in combination with many other factors — are twisted out of balance because the presumably scientific aspect sounds so much more authoritative than the less tangible factors of sense and experience.

This is evidenced most strongly in personality testing as a means of selecting executives, and even, in some



While scientific methods and measurements can be used for processes, they cannot necessarily be used effectively on individual human beings

companies, of promoting executives who have made a good enough record in every way to merit promotion.

The most enthusiastic of the reputable creators of personality tests always caution employers that such testing is only one factor that should be considered in hiring an employee, that it is not necessarily nearly as important a factor as a good interviewer's own impressions, that it is if anything an aid to a busy interviewer, and furthermore, that it should be considered only as a negative — in other words as an examination to weed out those obviously unequipped to deal with the job.

Yet many a company has elevated personality testing to the point where test results are the main element in selecting employees or executives, and even more slavishly, has even employed personality tests to determine whether or not particular executives should be promoted—executives who have been with the company, and have presumably made a good enough record in actual day-to-day working experience with the company to merit promotion in every other way. In the face of experience, personal judgment, and all common sense, in other words, large and respected companies are allowing their promotion policies to be governed largely by a procedure that does not even have the endorsement of all psychologists.

In other words, the accusation runs, the cults of the group and the "norm" — whatever that means in terms of real people — seem to be running away with American business thinking, and to the degree that people in management levels surrender to these cults, try to adapt themselves to them, they are stultifying the future of our business community, making it a group of thinkers in common, behavers in common, reactors in common, with all that that implies for monotony, leading to stagnation and eventual rigidity.

These are the accusations being leveled specifically at the business segment of our society which is accused of having made these mediocre virtues uppermost — leveled not by outsiders or politicians or labor leaders, but by those whose interests are identical with those of business. In any circumstances, there is too much evidence the charges may be at least partially true to disregard them whatever their source. In this instance, the sources being what they are, the warning is certainly to be taken seriously, as is the fact that the warning that came from a few small voices to begin with is now becoming a ground swell. The small voices have tapped a great underlying feeling and have given it form and a credo.

This may seem an intangible, but it is never wise to discount the power of an idea — or a concept, the very thing which the new voices accuse American business managers of trying to do.

That is why this growing feeling may well be the most significant event in American business during the first six months of the year — far more important in the long run than the continued prosperity, and the evolving techniques.

Computer sales still ri ing

But these tangibles have been important, too. The march of automation continues unabated; the top statistics, and the most dramatic hardly reveal the full extent of the story.

The electronic industry is now expanding at the rate of one million dollars a day. Most of this rise is attributable to the sale of computers and the figures show how rapidly computers are spreading through the nation's larger businesses. But computers are only one phase of automation, appropriate enough for big concerns, much too much armament for many smaller outfits. The smaller concerns, however, are moving toward automation in their own way. As the way has been cleared for computers in the big companies, renewed emphasis has been put on systems, for a computer can only work as well as the system which serves it. And systems revision is a potential step toward automation for any company. Moreover, through clever systems design, a high degree of mechanization can be achieved with relatively simple machines — simple at least in comparison with the computers. Punched

(*To page* 82)

Teletypewriter, private telephone wire speed order processing between home office and plants

How a twenty-five employee office automated order processing

Small New York office proves benefits of automation are not restricted to giant concerns, reports new system is already showing savings in time and money—

by Frederick Vogel

THE SMALL or medium-sized office, as well as the giant corporation, can obtain many beneficial results from automating its procedures—and usually without expending huge sums for necessary installations.

This is the story of one such concern which recognized the truth in this statement, set up its own integrated data processing system, and now enjoys a full return on its investment while reducing its work processing time by an average of 80 to 100 hours a week.

The Trinity Bag & Paper Co., Inc., employer of 25 persons in its New York office and about 800 throughout its entire organization, is a manufacturer of paper grocery bags and sacks and mill distributor of a wide variety of paper products. It maintains two plants, one each in Yulee, Fla. (about 20 miles north of Jacksonville), and Newark, N. J. About one year ago, the firm resolved to simplify its mounting paperwork problems, and at the same time devise a system to speed order processing procedures between the home office and the two plants.

Four standard Number 19 sending and receiving teletypewriting machines, two in the New York office and one in each plant, linked together by a private telephone line, were the only pieces of equipment required to transform Trinity into an automated office. And, the 40-year-old firm reports, the outlay of about $700 each month in rental charges for the system has been compensated for in monthly savings on long distance telephone calls alone. This saving is in addition to the sharp reduction in time formerly required to process an order.

About 18 sales offices throughout the nation represent Trinity products. Each office has on hand special order forms designed by Trinity, and orders originating at these offices are mailed to New York for processing. Naturally, orders may originate from other sources apart from the sales offices—i. e., telephone, telegraph, letters of in-

quiry, et al—but each is processed first at the New York office and relayed to the plants for action. Once the plants have shipped the order, verification reports are sent to New York, where final unit pricing is computed and invoices prepared.

It was in this area of inter-office order processing that the problems of work simplification fell. How might orders be transmitted to the plants in the fastest possible time; how might costly delays be overcome to the benefit of the customer; how might rapid-fire order relays and verifications between home office and plants be maximized—these, then, were some of the puzzles which automation, Trinity felt, could solve.

Before research was undertaken, orders had been processed in this manner:

Preparation of orders for transmission from New York to the assigned plant was made on a standard typewriter. When the order was received at the plant, it was necessary for clerks to type again the information for the production, shipping and stock record departments which handle orders at the plant level. When shipment from the plant was made, shipping papers had to be prepared for use by New York. Once this shipping information was received, New York, in turn, had to type the information on invoice statements.

Time delays caused by this procedure, heavily dependent as it was upon the mails, are obvious. Also, the constant re-typing of information widened the margin of error and necessitated continual rechecking by employees both in New York and at the plants.

A research program, under the direction of Milton Prager, assistant

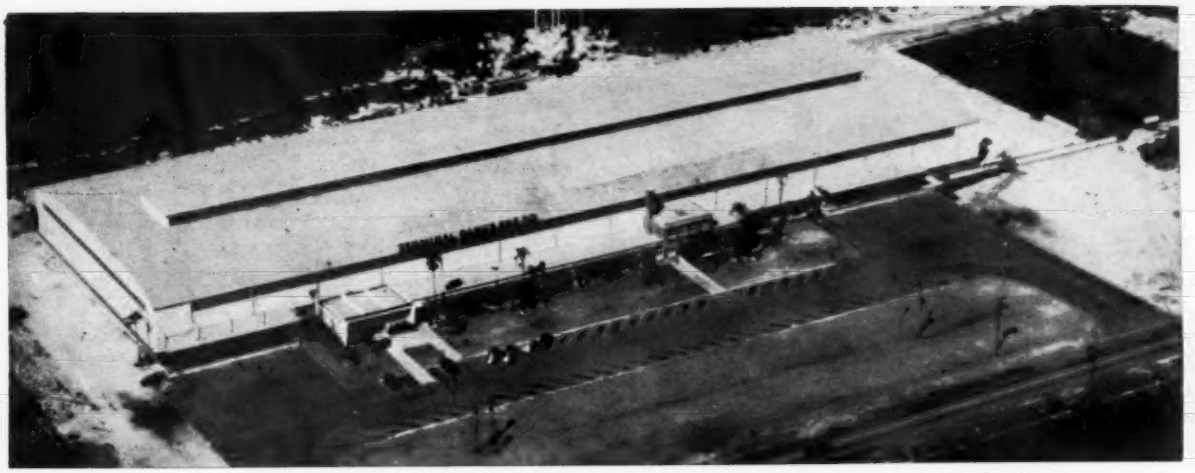
Aida Rodriguez pulls data from machine after "receiving" period

treasurer, and Leon Liebes, assistant traffic manager, was inaugurated to provide corrective measures. After months of study, rental from American Telephone & Telegraph Company of four teletypewriters, including a punch block and transmitter and the private line, was recommended. In each of the two plants, these machines were equipped with typing reperforators which punch five-channel, *readable* tape. Following another several months of testing, the system was placed in operation and, according to Mr. Prager, "worked from opening day."

Trinity then contracted for time from AT&T and arranged a schedule for sending order information to, and receiving shipping information from the plants. Thus, orders received at New York from representatives are *transmitted* over the private wire circuit to the Yulee plant from 4 a.m. to 12 noon, and to the Newark plant from 9 a.m. to 5 p.m. Replies are *received* by the New York office from Yulee from 9 a.m. to 12 noon, and from the Newark plant from 12 noon to 5 p.m. (A special starting-key device allows any of the offices to turn on each other's teletypwriter at any hour.) Each of the machines in New York alternates in sending and receiving during specified hours. Prior to receiving, of course, each office is signalled by the sender so that proper receiving forms are placed in the machines for recording.

When the New York office is *receiving* from Yulee during the morning, therefore, orders are in preparation for the Newark plant and are transmitted the next morning. Likewise, while it is *receiving* from Newark in the after-

"Revolvoforms" deliver and feed special order forms to teletypewriters during transmission



Customers' orders are relayed to Trinity's Florida plant, 817 air miles away, in a matter of minutes

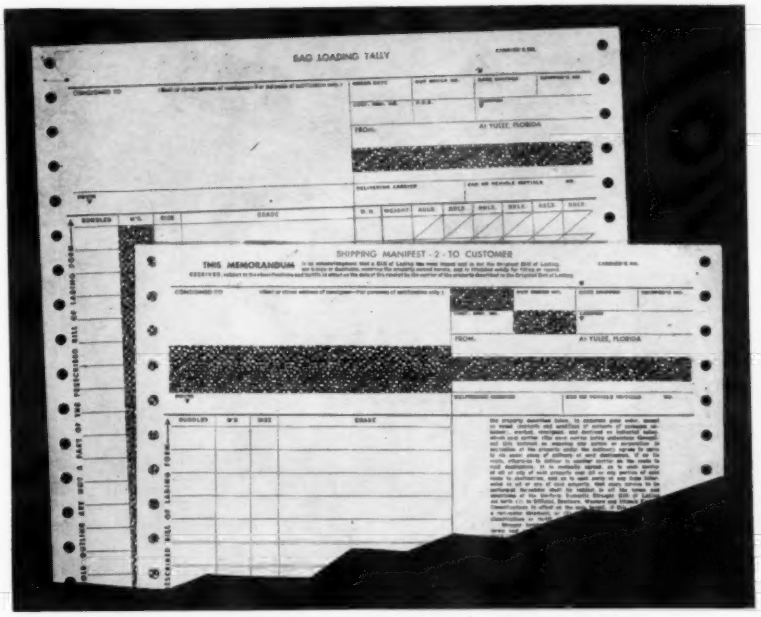
noon, orders destined for Yulee the following morning are in preparation. From this "simultaneous action," Trinity discloses, a steady stream of orders is channeled to each plant without any lapse in work flow.

Following receipt by New York of an assortment of orders from its representatives, a specific order is placed on the teletypewriter. It is at this point that the only actual manual typing by an employee is done, although additional "variable information" (such as shipping date, name of carrier, route, and number, kind and total weight of packages sent) still is typed in by plant personnel before New York receives full verification of the order. When New York receives this shipping information, unit price computations are made and extended, and invoices prepared and mailed to the customer.

Thus, processing of a single order, which once consumed as many as four days, is cut in half, and the possibility of error is curtailed sharply.

In detail, this is how the system works:

At the New York office: Assume the original order has been received. An employee types the information on a specially-designed form quite similar to the one received from the representative, using the teletypewriter as an ordinary typewriter to produce "off-the-line" copy for internal use only. In other words, during this initial typing, channels are closed and a "hard" copy of the original order is typed on the teletypewriter. At the same time the hard copy is being typed, five-channel tape is being punched with the identical information. Later, during designated "sending" periods, this tape feeds the order information to the plant in question.



Similar, yet distinct forms include "receiving" form (top), and "sending" form used by plant offices

At the plant: Prior to the time the plant expects to receive from New York, a five-part form, identical to the hard copy form already typed in New York, is inserted into the teletypewriter. Once receiving begins, the machine adjusts the form paper where necessary, spaces the sheets and types automatically in the correct lines the information required by plant executives. In a single operation, therefore, copies of the order are prepared for the production, shipping, stock record and other departments involved.

While the teletypewriter at the plant is receiving the information, the machine by means of its typing reperforator, produces a by-product common language, readable tape. Once receiving has been concluded, this tape is cut up, order by order, from the single strip of tape produced by the reperforator. These tapes are stored in clear plastic files until the order is ready for shipment.

Once the order has been shipped, the stored tape facsimile is placed on the teletypewriter, channels are closed, and a hard copy of the order information is typed automatically for internal use by the plant. While this hard copy is being produced, another by-product

(*To page* 70)

Some firms maintain "addressing sections" to handle large-volume outgoing mail . . .

. . . others utilize employees' mail sorting tables to route internal correspondence

Why your mailroom may be your most expensive department

by W. D. Sullivan
President, Postal Review Associates, Battle Creek, Mich.

IF COMPANY MANAGEMENT were asked to consider the case of a hypothetical department which is:

Absolutely indispensable to every business organization, and for which there is for all practical purposes no alternative possible—

Normally staffed by at least five, and sometimes by as many as five hundred people—

Disbursing agent for company funds in amounts ranging from thousands to millions of dollars a year—

And responsible for the interpretations of hundreds of complex regulations, and the impact of those regulations on the company's relationships with its customers and vendors—

—that management would almost invariably concede that such a department should be strongly supported, carefully supervised, and in general be regarded as a vital unit for company operations, and the object of continuing active interest on the part of top management.

Yet in actual practice, there is an actual department in every organization which meets these criteria and in most instances, it receives little or no attention or interest from management.

Unfortunately, in most companies, regardless of size, the mail department is regarded, more by default than by

Use of open side mail bins (left) and inserting and mailing machines help to speed mailroom operations

design, as somewhat of a stepchild. Its position in the organization may or may not be clearly defined. The support and recognition which the mail department head receives is rarely on a level equal to that of other major department heads. Frequently, the manager of the operation is someone of long service with the company who was assigned to the job for no better reason than that there were no other openings available. He is faced with a problem of constant turnover because of the nature of the work, and the fact that other departments draw on the mail department for clerical replacements. He may be aware of many of the complexities of postal rates and services, and does his best to apply his knowledge in an effort to obtain the best postal service for his company at the lowest practical cost. Unless he is provided with substantial support at a higher level, however, he is constantly faced with difficulties in achieving this objective. It is a rare instance, indeed, when higher management is sufficiently aware of the possibilities in savings from a careful selection of proper postal services, and from a realistic appraisal of personnel requirements, to give active support.

What are some of the reasons why these conditions are found applying to the mail function, even in many of our better managed corporations? Undoubtedly, the primary reason is the result of an assumption by most men in higher management that postal serv-

(*To page* 64)

Careful selection of proper mailroom equipment can result in reductions in a firm's postal costs

Mail workloads should be examined to indicate volume fluctuation, and to avoid over-staffing the department

Conclusion—

Audience participation keys NOMA meeting

Unionization is no idle threat, closing speakers tell conference; but it can best be forestalled by management acting as though " it already had union"—

IN "delegating by results," it is imperative to delegate planning along with results, Edward C. Schleh, president, Schleh Associates, Minneapolis, told the audience at the first session on Tuesday, the second day of the NOMA Los Angeles conference (*A report on the opening activities of the National Office Management Association's 38th International Conference, held in Los Angeles, May 13-15, appeared in the June issue.*)

"You should expect each person down the line to plan ahead so he won't be caught short, and be unable to get the results," Schleh declared. "Otherwise, it's easy for him to develop 'good' alibis. And actually, the top people can't do all the planning anyway, especially if timing is important."

Delegating by results is not enough, unless constant improvement is made a requisite of each result, the speaker went on, because a company in a competitive society is left behind if it's not continually moving forward.

"In general this means designing jobs below as small replicas of the job above," he told the audience. "In results, in planning, in a requirement for improvement, in authority, each man's job should be similar in a smaller way to the job of his superior. When you do this, you develop your people. You develop them so they use their own good judgment. Individually they are able to shoulder part of the load. Their decisions may not be the same as yours would have been, but they will all be in the same direction."

Committees, conferences, and "meetings of minds" can also be overdone, he warned. "In my opinion," he asserted, "the emphasis on group dynamics has in many cases gone so far that it has weakened basic delegation for results. People often use these meetings as a method of 'passing the buck.' They let others make decisions for them. They frequently bring their individual problems to these meetings, let others decide them, and then, if something goes wrong, they feel entirely in the clear."

Can staff job be carried by line?

He recommended as a good method of obtaining more effective committee action making the chairman of each committee specifically responsible for the results obtained by his committee.

Defining staff men as those who get results through others not directly responsible to them, he said that many offices find they have a large number of such personnel and are not getting the results expected. A good approach to this problem, he said, is to analyze critically the actual need for each staff function, evaluating that function in terms of whether it could be carried out fairly well by line personnel. If it seems that it could be, it will generally be more economical to make the function the responsibility of a line worker, he said.

"Another common error is to set up staff groups as more or less independent agencies within a company," he declared. "This often fails to recognize that, from a results point of view, staff always overlaps with line.

"Take a personnel man, for instance; perhaps his major objective is to make sure that people apply themselves well, so that you get the best production for your payroll dollar. But it is a basic responsibility of a foreman to get his men to apply themselves in order to get good production. There is a complete overlap here. In order to makes sure this works right then, you must carefully define the results expected of your staff people. Make sure they are harmonious with the results expected of the line. Failure to do this is often the starting point for a lot of line-staff conflict in many companies.

"When you are defining the results for records people, you get into a special kind of staff problem," he declared. "We usually solve this by what we call the action principle for records keepers. One of the principal problems with people who keep records is that they develop the idea that records are good in and of themselves; that when they have developed a report, they have made a real contribution to the firm. Unfortunately, this is not true. A report is only useful if someone uses the information in it in order to get a better operation.

"Under the action principle, you should say this: A person who is responsible for records should not be accountable for records as such but for the results those records are supposed to achieve. When you do this, you force him to interpret those records and interpret them to the people who should take action. This means that you get the use of those records down the line and not always at the top. This makes your record systems much more vital and useful."

Also essential in "delegating by results" is giving authority to the people expected to obtain the results, he said.

"What is real authority?" he asked. "Basically, real authority means the right to make errors. I repeat that—

Frank M. Knox
Forms Control

Charles E. Puskar
Mailroom

Howard A. Brooks
Mailroom

John N. Given
Unionization Moderator

Robert D. Gray
Unionization

Richard W. Lund
Unionization

the right to make errors. In order to delegate real authority, you must give your people the right to make errors, only set limits on them."

When the "right to make errors" is given, and is understood by the people to whom the assignment has been given, it automatically cuts down the number of memos, committee meetings, etc., created just to spread responsibility, he went on.

"The net result of this delegation of authority is to develop real decentralization, to capitalize on all the brains in the company," Schleh said. "You get each person down the line to assume his part of the load, and exercise his own good judgment. I want to reemphasize, however, that all authority is within limits. There is no job that has full authority. There should be a recognition, though, an explanation by the supervisor as to what these limits are, policy-wise and job-wise."

When these things have been done, the way to make the organization move is to use accountability for results as a basis for all dealings with employees, he said.

"What does accountability mean? It means that if something goes wrong, *a* person *is* it. If something is right, he gets a pat on the back. This should be reflected in every possible area in dealing with your employees. It should be reflected in your pay systems, in your merit appraisals, employee recognition, promotion systems, every place where you can show the man that you recognize a job well done or poorly done."

Areas where trouble can develop in getting the best work from people are those where one employee is responsible to two different bosses, where an executive and his assistant are each transmitting orders on his own, or where a top executive gives orders directly to subordinates of an executive farther down the line, he advised.

Cutting mailroom costs was emphasized through two panel sessions

Irvin A. Hermann
Fellowship Award winner

Even in a company where delegation by results is the rule, good supervision is still important, he pointed out. But it is important to define what supervision should be and what it should not be.

"Set this rule," he advised: "It is the basic responsibility of every supervisor to supervise. This means that it is his job to make his people successful. Basically what is supervision? It is:

"To set objectives.
"To train people.
"To assign work.
"To check.
"To discipline.
"To follow up.
"To stimulate.
"To install new methods — and I emphasize install, not just develop.
"To develop men.
"And finally, overall, to call to account."

To insure adequate supervision, it is necessary to watch the span of control of each executive and supervisor, the number of workers and activities for which he's responsible, he declared. Cutting down on supervision as an economy measure is often the falsest kind of economy. In determining the right span of control for any supervisor, he advised that the type of work done by the people under his control be considered, whether that work is variable, or whether all workers are engaged in the same activities, whether each works independently of his fellows, or whether there is interdependence with the group for the work cycle, and, finally, the physical distance of the supervisor's work place from that of the group for which he supervises.

In conclusion, Schleh said that developing successful executive action within a work group is a combination of many different factors.

"The real results you get as an executive of a firm come from the successful blending of all the activities by the sound application of management and organization principles," he went on. "But these must be applied all the way down the line. You must develop the policies and set the environment to encourage the action, the right action at every level. You will then capitalize on the native ability, the ingenuity, and judgment of all your people. The potential that men have is far greater than we normally realize. With this approach, you as an executive can make the most of that potential."

Knox: True forms control rare

Frank Knox, Frank M. Knox Co. Cleveland, in his two session discussion of Forms Control, the first part of which was held concurrently with Schleh's talk, equated the cost of each form a company uses with its total payroll divided by its total number of forms.

"Let's look at the true cost of a form," he said. "A form is blank spaces in which you write information. Assume that a company had a one million dollar payroll. That is only 333 people at $3000 a year. Not a very big organization. If that company had 1000 forms, it becomes very obvious that each of those forms costs $1000 a year in terms of clerical payroll. Now if you consider that your forms cost $1000 a year apiece, or some such figure, you will take a different viewpoint on them. It will be different from the viewpoint you will take if you figure it as $2.10 worth of sulphite bond which Susie will run off in her spare time."

Moreover most companies have no idea of the total number of forms they have in use, he declared, and would be appalled at the totals if they investigated.

Although most companies pay lip service to "Forms Control," very few of them have a really effective program, Knox continued.

"Probably the most common method of attempting forms control is to have someone look them over as they come up for reprinting," he said. "That will be somebody in the purchasing department or in the stationery stockroom or in the office manager's office, or maybe in the controller's office. Somebody takes a look at it and sends a little slip of paper, and asks, 'Do you really need this?' The man is busy and he sends it back—maybe he doesn't. It's a make-shift. I mean that literally. It is a make-shift attempt. It is not good Forms Control, ladies and gentlemen. You may salve your conscience with it; you may kid the boss into thinking you are doing something, but it is a very inadequate attempt at forms control."

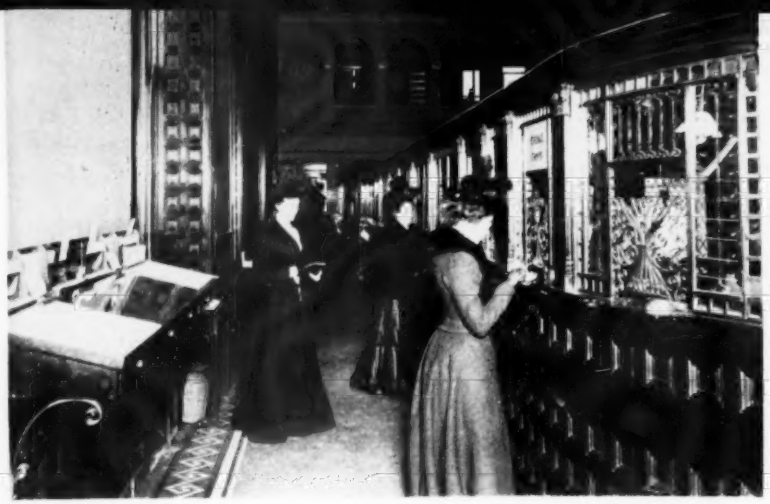
First step in true forms control is to inventory all the forms in use throughout an organization, Knox declared, and to create two controls—a numerical file and a functional index classifying all the forms.

"Now we come to the guts, if you please, of forms control," he said. "You cannot control your forms without a functional index. It is impossible. Now I grant you, we have to define that word control. You may use it in any way you please. But if you want to do the things that have to be done to forms in order to control them, eliminate every unnecessary form, consolidate different forms doing the same thing, simply speaking, you cannot do it without a functional index. What is a functional index? A functional index is a file over in the corner. In that is a bunch of folders, and in each folder there is one copy of every form in the entire organization that does the same thing.

"You have to classify forms by subject, operation, and function. You must not try putting all invoices together, or all checks together, because very quickly you will run out of terms. You will have two-thirds left

(*To page* 78)

Robert Tannenbaum
University of California



"Old style" interior, brownstone facade of one of New York's oldest banks . . .

. . . are replaced by modern skyscraper

Spectacular new offices mark merger of two famous New York banks

New building on site of old Fifth Avenue Bank blends traditional, modern decor to suggest bank's distinguished history in setting of modern efficiency—

AFTER 67 years adjacent to the location once pinpointed by the New York Social Register as the exact geographical center of New York society, the Fifth Avenue Bank Office of The Bank of New York—prior to 1948 known as the Fifth Avenue Bank—conducted operations for the first time last month from one of Manhattan's most modern skyscrapers.

Named for its principal tenant, the new 25-story Bank of New York Building, at the corner of 44th Street and Fifth Avenue, replaces a cluster of brownstone residences which housed both the old and new bank's offices from 1890 until demolition began in April 1955. And just as the merger in 1948 gave birth to a new name for two of New York's oldest banking institutions, so does the new structure embody within its gleaming limestone facade the elements of tradition and leadership for which each bank had become famous through the years.

The Bank of New York, under the guidance of Alexander Hamilton, was organized on March 15, 1784; the Fifth Avenue Bank, in 1875. For the first 15 years of its existence, The Bank of New York alone shouldered the financial needs of a growing metropolis, and so notable did this institution become that during this period it was known simply as "The Bank."

In 1922 it acquired a large and established trust business through merger with the New York Life Insurance Company, and 26 years later entered the mid-town area through merger with the Fifth Avenue Bank. This latter enterprise had been a fa-

Spacious lower banking floor houses additional tellers' cages, vault and employees' dining room and lounge

Crowded clerical areas of the bank's earlier days have given way to emphasis on roomy, comfortable offices

miliar Fifth Avenue address since its inception. In 1890, after 15 years of conducting business directly across the avenue, it converted the Irwin H. Cornell mansion on the corner of 44th and Fifth, as well as the adjoining Manton Marble and A. L. Mowry residences, for banking purposes. This is the bank, incidentally, which provided the backdrop for much of John P. Marquand's novel, *Point of No Return*. (Edward Streeter, author of *Father of the Bride* and other best-sellers, was a vice president of The Bank of New York in charge of the Fifth Avenue Bank Office until his retirement last year.)

The new office, which at present occupies about 38,000 square feet on four levels of the building, has been cited by Albert C. Simmonds, Jr., president, as typical of the kind of space that is part of "the greatest amount of office building construction in the history of New York City."

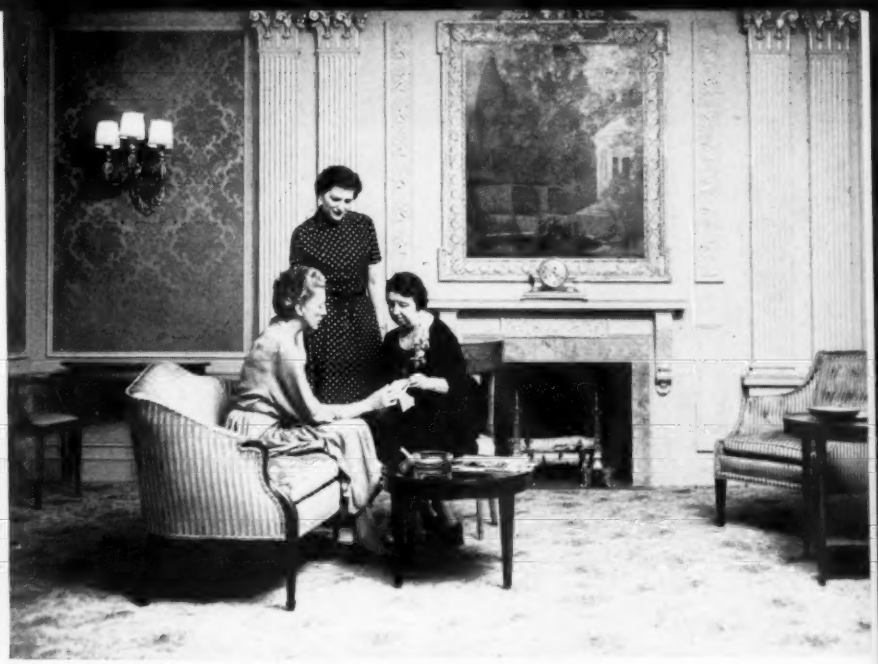
Mid-Manhattan, he continued, is the "executive hub of the United States" and the "most dynamic part of our dynamic city." He added:

"There is probably more concentrated executive brainpower per square foot in this area than could be found anywhere. The buildings of Mid-Manhattan contain an incredible store of human vision, energy and creative ability that exerts a powerful influence in industry and finance throughout the world."

The building, constructed of white Alabama Rockwood stone and granite, extends westward from Fifth Avenue to a depth of 175 feet on 44th, and 100 feet on 45th Street. Dominating the main banking area is a floor-to-ceiling charcoal grey panel of Marquina marble. Incised in this panel is a four by eight gold-lettered reproduction of the original advertisement which appeared in the New York *Packet* on February 23, 1784, announcing the meeting which led "Gentlemen in this City, to establish a B A N K on liberal principles." (Shortly afterward, the bank made the first loan to the United States Government.)

One feature of the new office is a reconstruction of the Gold Room, the famous ladies' parlor of the old building. The original of this room was inspired by A. S. Frissell, president

The Fifth Avenue Bank, one of the first financial institutions to solicit women's accounts, was famous for its "ladies parlor", recreated in the new offices



The famous Gold Room, landmark of another era, has been preserved intact on the main banking floor

Conference rooms, modeled in Georgian, Colonial and contemporary design . . .

. . . reflect stages in the bank's long history

of the Fifth Avenue Bank from 1885 to 1916, when, in 1910, an adjoining carriage house was purchased and remodeled into the bank's "retiring and consultation room for ladies." The walls of the room were covered with damask in a rich gold color, woodwork was of ivory and gold, and writing desks of white mahogany and an ornamental fireplace were included.

Active seekers of women's accounts for their bank, Mr. Frissell and associates "shocked conservative New Yorkers" by deliberately inviting the patronage of women as early as 1893 with a booklet publicizing a "daintily furnished" parlor for lady clients. The success of this parlor, predecessor of the original Gold Room, was recorded

(*To page* 62)

Florida airline plans electronic control of air freight shipments; IBM reports new installations

Electronics as a helpmate to expedite customer service and further speed the handling of freight in the air cargo industry—the first step in a program designed to lead to electronic control of deliveries, air waybills, operations, inventory and space reservations—has been a topic of discussion in Florida recently.

A task force of Western Union Telegraph Co. executives has completed the first of a series of conferences with Riddle Airlines, Inc., officials in Miami leading to installation of electronic equipment to tie together the airline's route cities on the East Coast and in the Midwest over its 3,319-mile communications system.

One of the first benefits will be the electronic arrival of air waybills in advance of plane flights. This will make possible the determination of freight aboard and pre-planned delivery routing of trucks, according to Rodney W. King, Riddle's executive vice president.

At the same time, management—pre-advised of arriving supplies—can lay out and plan production schedules on an up-to-the-minute basis. When the finished product is ready for shipment, management's customers also will receive advance notice in time to plan for speedy deliveries of the shipments.

Under the new system, an air waybill will be prepared manually only once, and at the same time a five-channel common language tape will be cut for transmission over the airline's regular communication wires. At the destination station, a teleprinter will reproduce the information. The system, Riddle reports, will save hundreds of man-hours now spent in manual preparation of the waybills.

Future developments for the electronic system will include control of inventory and parts and use in space reservations and operations, as well as integration with the company's accounting system.

Maytag, Gulf instal IBM units

Application of new electronic data-processing equipment from International Business Machines Corp. for use in payroll computation has been announced by The Maytag Co., an appliance manufacturing firm in Newton, Iowa.

The IBM 650 equipment in a single process records payroll computations for daily incentive employees, compiles weekly job cards and tabulates an account distribution card, a cost center card and a per cent interval card.

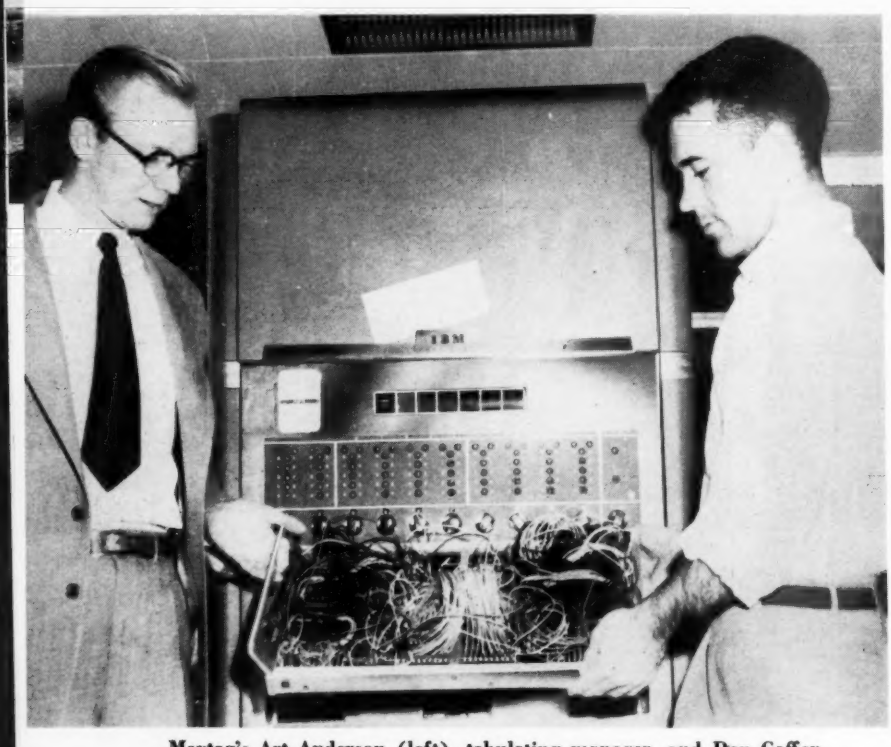
With a memory capacity of 20,000 digits, the new equipment will be used also for processing data on production, inventory control and market research. Already, a data-processing committee has been formed to program procedures and determine possible additional uses for the equipment.

At present, approximately 7,500 cards are being processed each day.

The latest of three 650 Data Processing Systems from International Business Machines Corp., installed by Gulf Oil Corp. for use in the continental United States, was placed in operation last month at the oil firm's Philadelphia refinery.

On the accounting side, first assignments handled by the 650 include billing price computations, daily tank gauges and inventory, oil and meter calculations, and propane-propylene computations. These and future accounting applications will be used at the refinery to set up and control an operating budget, IBM continues.

Two other Gulf 650's are located in Texas—one at the Houston-Fort Worth accounting office in Houston, the other at the Port Arthur refinery.



Maytag's Art Anderson (left), tabulating manager, and Dan Coffey, who is in charge of coordinating use of the new equipment, inspect control panel in the company's newly-installed 650 processor

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"A network of 14 manufacturing and assembly plants in strategic U. S. markets, field engineering offices in 75 principal cities, and a nationwide distributor organization are all important segments in our program to provide customer service on a local level—*to be easy to buy from.*

"In this program, National Accounting Machines fulfill a very important function, by enabling us to carry on many decentralized operations and at the same time, providing the benefits of central accounts receivable procedures in our main offices.

"Moreover, our National Accounting Machines return us 67% annually on our investment. In addition to more efficient posting, invoicing, and rendering statements made possible by Nationals, we find that the day-end summaries provided are helpful in maintaining various internal control policies."

Henry Morgan

Vice-President Finance, SQUARE D COMPANY

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office management

Semi-annual Index

January-June, 1957

Association News

Systems stressed as communications medium at SPA meeting (Conclusion) ... January, page 38
Annual OMAC Seminar, business show opens March 11 in Chicago ... March, page 37
Complete "electronic environment" for management foreseen at AMA meeting
Part I —April, page 27
Part II—May, page 42
Chicago seminar concentrates on personnel, motivation, human relations problems ... April, page 34
NOMA announces complete schedule for annual conference in Los Angeles ... May, page 35
Audience participation keys NOMA meeting Part I—June, page 32

Automation in the Office

Operations research—what it is—how it works
by Robert M. Smith ... January, page 26
University of Chicago holds second annual automation conference
by Frederick Vogel ... January, page 30
Office automation—how far have we come today? ... February, page 27
Three computers speed data flow at Metropolitan Life
by Frederick Vogel ... February, page 32
How Rap-in-Wax improved accounting operations while lowering costs
by P. M. Grieve ... February, page 36
Office automation, 1957—the changing picture
by Robert M. Smith ... Yearbook, page 10
Operations research—science enters the business picture
by Clifford J. Craft ... Yearbook, page 14
Paperwork control in the coming era of automation
by Robert A. Shiff ... Yearbook, page 27
Practical pitfalls to guard against in electronic data processing
by Ben Conway ... April, page 24
Operations research conference planned in Chicago ... April, page 33

Layout and Equipment

1956 "Office of the Year" Awards announced January, page 29
New headquarters of Procter & Gamble is groomed for growth ... January, page 33
"Office of the Year" award winners ... February, page 30
Space-planning trends in the post war era
by J. Gordon Carr ... Yearbook, page 34
The physical office—a channel for work flow ... Yearbook, page 38
"Office of the Year" Awards: Standard-Vacuum Oil Co.; Sylvania Electric Products Inc.; Colgate-Palmolive Co.; Ford Motor Co.; Capitol Records, Inc.; and American Iron and Steel Institute.
by Frederick Vogel ... Yearbook, page 51
New designs, new demands spur wood office furniture sales ... May, page 44
New communications, new layout speed, simplify brokerage firm's work
by Frederick Vogel ... June, page 36
Steel maintains lead in office furniture field despite reviving interest in wood ... June, page 39

Personnel

How management can detect and handle employee grievances
by Robley D. Stevens ... February, page 34
How to rate your supervisors—first step toward improving their performance
by Lester Tarnopol ... March, page 24
Personnel—today's prosperity breeds the problems
by Edith Conner ... Yearbook, page 18
Personnel administration must be a career, not a catch-all
by Jules M. Graybard ... Yearbook, page 20
Four ways to establish a job evaluation program for your office
by Robley D. Stevens ... April, page 30

Special Features

Communications skills taught at new AMA clinic series ... January, page 40
Graduate business school trains women for executive roles
by Robert M. Smith ... February, page 24
Art follows function through all departments of New York bank
by Mabel Faux ... March, page 27
The six prerequisites of the good business letter
by James D. Barry ... March page 32
New business machines to be presented at OMAC show ... March, page 38
Communication: the lifestream of every organization
by Charles E. Redfield ... Yearbook, page 30
AMA establishes new advanced management academy ... April, page 68
How to systematize the selection and buying of office equipment ... May, page 32
Does your office follow sound span of control principles?
by Stanley H. Mansbridge ... May, page 37
AMA introduces "war game" principle to train executives in decision-making
by Robert M. Smith ... June, page 28
Unionization—are you prepared for it if it should come in your office?
by Robley D. Stevens ... June, page 34

Systems Design and Methods

Simplified storekeeping for smaller organizations
by Stanley H. Mansbridge ... January, page 36
How to make your forms simple, effective, economical
by George Biek ... March, page 30
Complete record control—from creation through destruction
by Robert Kerr, Jr. ... March, page 34
Systems planning—insurance for prosperity or adversity
by Ralph W. Fairbanks ... Yearbook, page 24
Angelica Uniform Co. meshes order writing, invoicing, reports in one system ... April, page 36
How we cut record-posting time ten days
by John B. Scott ... May, page 39

Tools of the Office

by Robert Beeman

Storage Equipment: Wardrobes and Lockers, Supply Cabinets ... January, page 54
Numbering Machines, Time Recorders and Stamps, Check Devices ... February, page 52
Water Coolers ... March, page 47
Tools of the Office—a review of current office equipment ... Yearbook, page 75
Air Conditioning Equipment, Fans and Air Circulators ... April, page 48
Acoustical Materials; Floor Coverings; Overhead Lighting Fixtures; Movable Partitions May, page 52
Addressing, Collating, and Mailroom Equipment ... June, page 50

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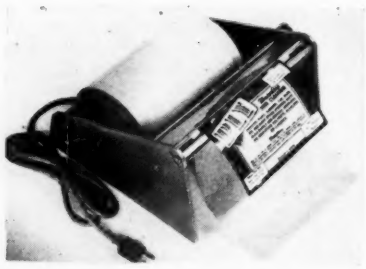
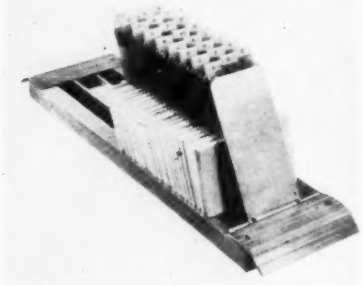
New for the office

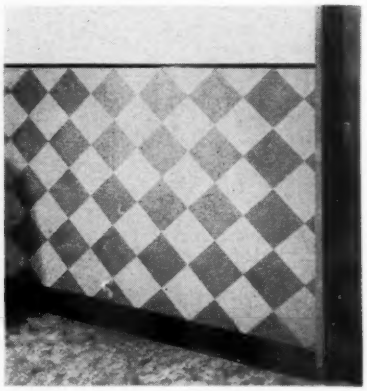
▲ Photocopying machines
Capable of making photocopies up to 20 inches wide by any length, the Genco Exact-Fax Duo consists of an automatic continuous printer with shutter-type light control and an automatic continuous processor. The printer lists at $250 and the processor at $225. They are available singly, or as a complete outfit for $450, from General Photo Products Co., Inc., General Photo Bldg., Chatham, N. J. **(A-1)**



▲ Label dispenser
This wide manual dispenser for self adhering labels, announced by Archer Label Co., 783 Kohler St., Los Angeles 21, will handle rolls as large as 9 inches wide. Retailing for $39.50, the dispenser also may be rented for temporary use, the manufacturer states. **(A-2)**

▼ Vertical Multi-Sort
Designed to speed the sorting of any media up to 8½ inches in width and 5½ in height, this new Multi-Sort, according to the manufacturer, can reduce by 50 to 75 per cent the usual time required for most ordinary hand sorting. It is a product of Remington Rand, Div. of Sperry Rand Corp., 315 Fourth Ave., New York 10. **(A-3)**





▲ Plastic wall covering
Vinyl Wall Tile, a new fire-resistant plastic wall covering, has been developed by the Armstrong Cork Co., Lancaster, Pa., for commercial and institutional installation. It is available currently in 9 x 9 inch tile, in 9 textured colors. **(A-4)**

▶ Portable typewriter
Recently added to the firm's Olympia line, this typewriter weighs slightly less than 10 lbs., including carrying case, and features standard key spacing, three-position line spacing, correcting space bar and aligning guides. The machine, termed the Olympia "SF" Lightweight Portable, is distributed by Inter-Continental Trading Corp., 90 West St., New York. **(A-5)**

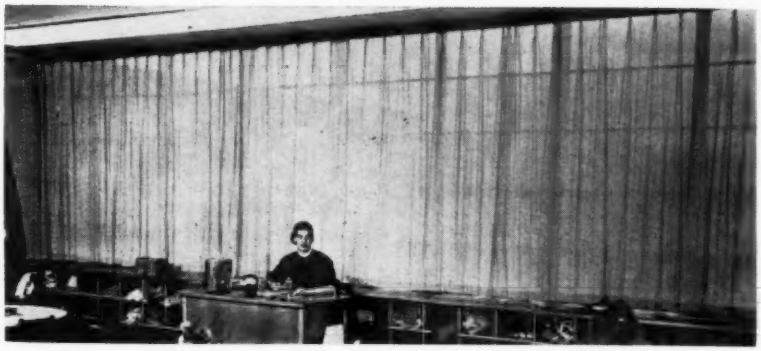
▲ Precision lettering instrument
Working against a T-square or other straight edge for horizontal line-up of lettering, this Varigraph is adaptable to either right- or left-hand operation. It weighs 1¼ pounds and measures 7 x 7 x 1⅜, and is available from the Varigraph Co., Madison 1, Wis., at a cost of $98.50. **(A-6)**

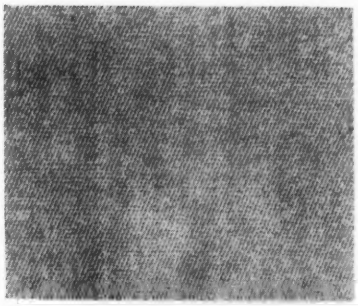
▲ Tape mailing and storage box
Completely lined to prevent oil from penetrating paper tapes, this tape mailing-storage box, Model No. 5644, is made to rigid specifications of heavy brown kraft construction. It is available from Dresser Products, Inc., 152 Wheeler Ave., Providence 5, R. I., in 4-, 5- and 6-inch sizes. **(A-7)**

▶ Translucent cloth
Inherently fireproof, washable, stain-proof, exceptionally color-fast and dimensionally stable, this translucent cloth, according to the manufacturer, provides effective sun glare control for all work surfaces. The fabric is manufactured by Edwin Raphael Co., Inc., 157 Central Ave., Holland, Mich. **(B-1)**

▲ Wheel for office chair casters
Development of a new rubber wheel, 2 inches in diameter, with a 50 per cent longer service life expectancy has been announced by the Bassick Co., Bridgeport 5, Conn. Developed in conjunction with the Firestone Tire & Rubber Co., the new wheel is said to incorporate the latest advances in rubber compounding and mold design. **(B-2)**

▲ Cantilevered chair
Seat and back cushions of this "tilting back" cantilevered chair are upholstered in washable plastic and suspended on a sturdy frame of Nubian steel. Retailing at about $9.95, the chair is a product of the Baumritter Corp., 171 Madison Ave., New York. **(B-3)**

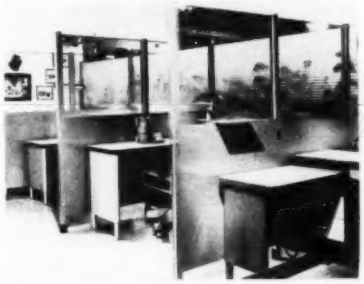




▲ Office fabric
"All-Spun" Nylo-Saran in the new Signet pattern lends this material a softness and durability by blending the strength of Nylon with the abrasion-resistance of Saran. Virtually stain-proof and non-inflammable, it is manufactured by Virginia Fibre Corp., High Point, N. C. **(B-4)**

▼ Secretarial desk
This all-purpose desk, incorporating 5 Work-Organizing Drawers, a full 60-x 32-inch rimless working top, and a double-sized 17- x 35-inch machine platform, is designed to help a secretary complete more work more easily and quickly, than previously. Measuring 60 x 66, the desk is available from Shaw-Walker Co., Muskegon, Mich. **(B-5)**

▼ Partitioners
Designed for partitioning large work areas into individual offices, the "Partitioner" is a product of Marnay Sales Div., Rockaway Metal Products Corp., 1270 Broadway, New York 1. **(B-6)**



▲ Desk and/or table lamp
The Berko-Lite, featuring four-arc movement for freedom of position and height adjustment, lists at $34.95 and is available from J. A. Berko Mfg. Co., 10578 W. Pico Blvd., Los Angeles 64. **(B-7)**

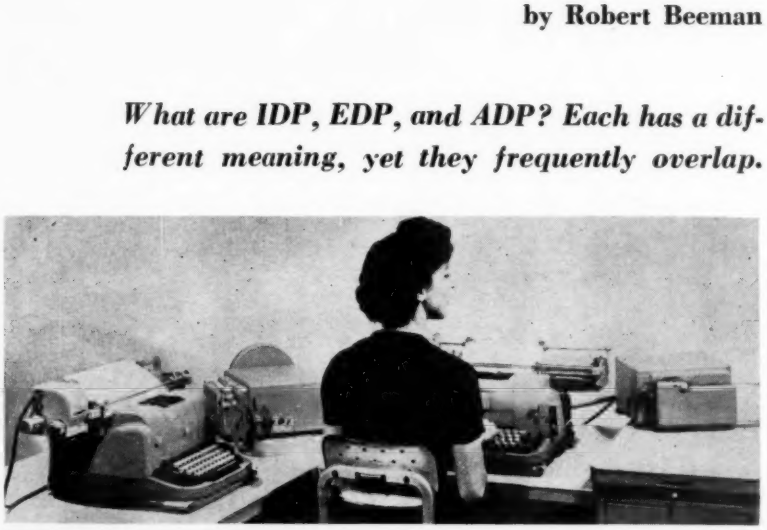
A Monthly Feature

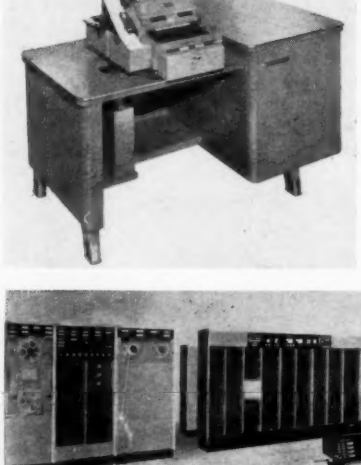
Tools of the Office

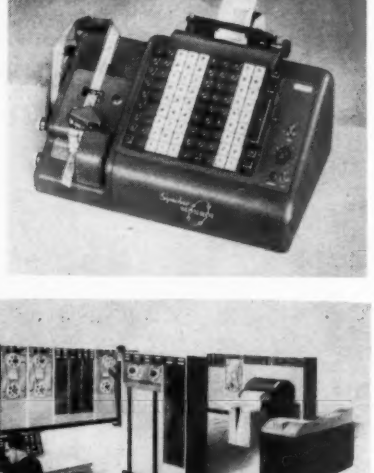
Equipment for "Automation in the Office"

by Robert Beeman

What are IDP, EDP, and ADP? Each has a different meaning, yet they frequently overlap.







New office work techniques, whether or not "automated" or "electronic," usually stress "integration" of one phase of work with another, to eliminate wastes of time, motion, and material. *Top:* A sale is recorded in "machine sensible" form by a unit reading punched merchandise tags and customer credit plates. *Next below*: Essential in modern data handling is fast, automatic data transmission. This sending and receiving teletypewriter is typical of equipment used. *Left, top*: Typewriters and other basic office machines can be combined in "programmed" systems to punch tapes which later operate other office machines automatically. *First pair, left*: Coordination of business forms with automatic recording of data in a "common language" such as punched tape permits entering data into the automatic work flow at the earliest possible point. An accessory simplifies form alignment. *First pair, right*: Electronic computers may be small, yet capable of doing enormous amounts of work at prodigious speeds. *Second pair, left*: Integration or automation of limited areas, such as automatic billing merely by entering basic data in a typewriter, permits a step-by-step approach to automation; yet this equipment can be operated by common language codes and can be integrated into large systems. *Second pair, right*: Conventional office machines such as this adding machine, can be made to produce common language records for automatic processing. *Bottom*: Large electronic systems using a computer can perform high-volume operations at fantastic speeds. *(Pictures by courtesy of Remington Rand, Teletype, Underwood, Moore, Burroughs, Friden, Monroe, and National Cash Register.*

THE BUSINESS WORLD has spent more than three years trying to adjust to an event whose significance has not yet been measured. That event was the announcement, at a conference of the American Management Association in February, 1954, that the United States Steel Corporation had developed and installed a revolutionary system for handling office work.

It was a system in which office machines controlled each other automatically. It was a development that seemed to prophesy a day when the work of the office would proceed without human intervention.

The reactions were diverse. Some businessmen thought at once of the possibilities of immense savings in clerical labor. Some, reflecting that they could do a better job of managing their companies if they could get better and faster operating reports, looked to the new system as an exciting new management tool. Some, fearful for their jobs, predicted mass unemployment.

Some—most businessmen, probably—took note that something new was happening, but decided that it was probably only for big companies (it hadn't really proved itself, anyhow), and went back to their dull but comfortable routines, hoping their lives wouldn't be too violently affected.

In fact, the system was too new, and offered too many ramifications to be evaluated very confidently. Had it all stopped there, it no doubt would have been seen in a valid perspective by 1957. But, far from stopping there, it inspired systems experts and designers of equipment to seek still more novel means of carrying out the work of the office automatically.

Automation is here—but what is it?

It is said widely that in 1957 automation in the office is an accepted fact. But what this really means is that the office world knows that something is going on that probably will prove to be quite important. It has heard talk of integrated data processing, and electronic computers, and automation, and common languages, and it senses that some spectacular equipment has been developed. But it does not really know what automation is.

And no wonder! In the first place, the new advances are indeed spectacular. Not only have machines and systems appeared that do incredible things, but they are so varied in function and capable of being combined in so many ways that it is impossible to keep pace with them. And in the second place, there has as yet been no real agreement as to the terminology required to define them. This factor very much complicates intelligent analysis.

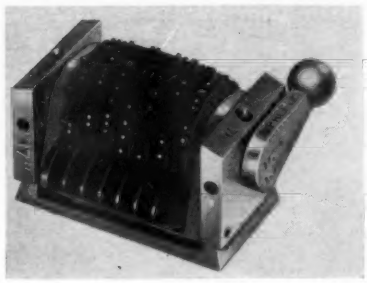
A phrase that came into being along with the United States Steel installation was "integrated data processing." This is a rather fearsome expression. It happens to be a quite accurate one, but it produces an inclination to run to more comfortable ground.

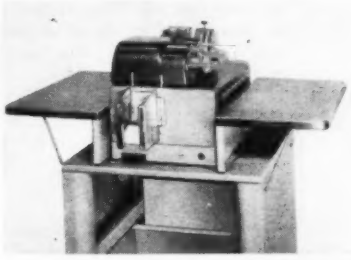
It has been followed by such other expressions as "electronic data processing," "automated data processing," and, of course, "automation" itself—a term which already meant many things to factory workers. Even a word like "electronics," which for years has had a specific definition, came to be used indiscriminately and thus lost some of its power to convey a precise meaning; today, when the word is used, it is often necessary to stop and redefine it.

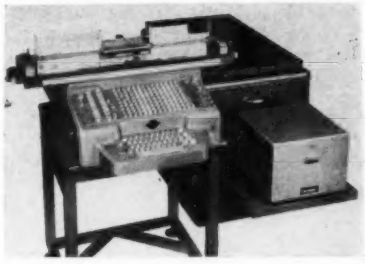
It is natural that this should happen. The new office phenomenon, whatever it is called, is too complex to be easily understood, and capable of too widespread an application to be clearly delimited.

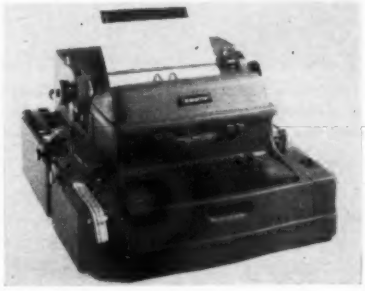
Nevertheless, among those who have worked closely with the subject, certain definitions are beginning to be accepted without too much objection.

Let us begin with an old word—"electronic." This is the word used to describe equipment which depends on the use of vacuum tubes, or on

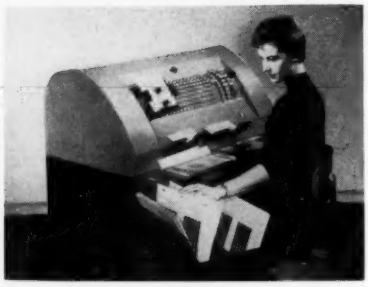




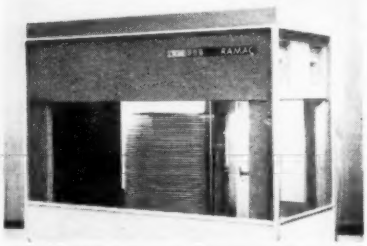




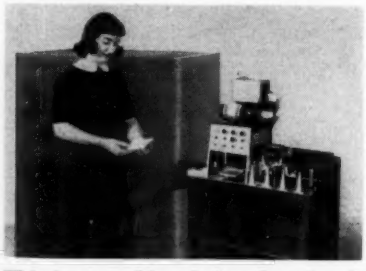
To achieve the ultimate in efficient data handling, repetitive information should be entered into the system in such a way that repetitions, where needed, are made automatically. This can be accomplished by recording the data in a "common language" which can be read by machines. Shown here are units designed to produce a common language as early in the work flow as possible, usually as a by-product of some necessary operation. *Top*: an accessory unit to print numbers in code for magnetic or photoelectric scanning. *Second*: a machine to pre-punch merchandise tags with basic data. *Third*: a typewriter which encodes data on magnetic tape for entry into computer systems. *Fourth, fifth, and sixth*: An adding machine, an accounting machine, and a typewriter, all capable of punching a paper tape as a by product of standard operations. *(Pictures by courtesy of Force, Dennison, Remington Rand, Clary, National Cash Register, and Friden, respectively.)*



Magnetic codes printed on "stripes" on the reverse of otherwise conventional business forms are used to control a number of banking operations automatically. This Post-Tronic machine, designed to read such codes, is made by National Cash Register.



Quick random access to stored data permits business to adopt "in-line" methods in which all relevant accounts are posted as each transaction occurs instead of waiting to post in "batches." The magnetic disk storage unit shown here is IBM's RAMAC, designed for random access work. Below it is a station from which the files may be "interrogated" for current" information.



This is a machine designed to "read" printed characters. Using standardized numerals and/or letters, such equipment can take data automatically from such documents as bill stubs, customer credit cards, etc. This model is by Intelligent Machines Research.

some modern substitute for vacuum tubes, such as transistors. Until recently, other kinds of electrical equipment was referred to simply as "electric," or "electrical."

"But "electronic" is the more glamorous word today. It is often used to describe many standard items of equipment that are not really electronic, in the honored sense of the word. Yet it is important to make the traditional distinction. Electronics is a field in itself, and it does not add to the general understanding to use the word loosely.

Consequently, a phrase such as "electronic data processing" cannot legitimately be applied to systems using standard electrical equipment only. Data processing is not electronic unless it involves vacuum tubes, transistors, or the like. In practice, since the field of truly electronic office equipment is fairly narrow, electronic data processing almost automatically implies—although not by definition—the use of an electronic computer. There are many instances of integrated, and even "automated" data processing, which do not require the use of electronic equipment.

Terminology needs explaining

But if "electronic" is a term which can be used in a specific sense, the terms "integrated" and "automated" are not. Here is a major difficulty. While these words imply a fairly specific concept, they are actually used in a very relative sense.

Thus, "integrated" should convey the idea of "wholeness." It means that the parts of a system should be united into a complete whole. As applied to data processing it implies that the various parts of the system are designed so that each fits neatly into an overall pattern. The word is roughly equivalent to "coordinated." It suggests that the different elements do not work at cross purposes—that there is no unnecessary duplication, no waste of time, motion, or material.

It has come to be an accepted principle that in integrated data processing this result is best obtained by arranging for the automatic perpetuation of repetitive data, so that information entered into the system remains in it in usable form and does not need to be re-entered, and that it does not emerge from the system except in its final, processed form. There are many methods for accomplishing this end, as will be seen later.

The fact that the word is relative in its actual use becomes apparent as soon as one attempts to define the limits of a system which is to be "integrated."

How big is a system? This is a vital question. Let us consider the handling of charge sales in a department store as an example. The sales clerk is instructed in how to obtain the necessary information—item description and price, customer identification and credit standing, and other data—and how to record it. She has a means of following through from merchandise tag and customer credit card to sales slip. She has a "system."

But what then happens to the sales slip? In the first place, it is usually prepared in several parts, with the help of carbon paper. Each of these parts has a destination, and at each destination it finds itself entered into another "system"—such as a system for recording accounts receivable, for preparing customer statements, for analyzing sales, or for determining inventory requirements. Or the information carried in the sales slip may be copied into some other form—entered in a ledger, punched into a card, or the like—and in its new form it is similarly entered in some "system" or other.

Is it true, then, that the operations of a business break down into a series of "systems"? Or should these lesser units actually be viewed as part of a larger system encompassing a number, or even all, of them? Does the system begin with reading the merchandise tag? Or does it go back to the point at which the tag is printed or written in the first place—or, even earlier, to the executives responsible for ordering merchandise and setting prices, and who must transmit their decisions in some manner to those who will carry them out?

And does the system end with the sales slip? Or does it include the other systems that come into operation only when the parts of the sales slip are distributed?

And what about the shipping of merchandise ordered from the warehouse or the factory? Here again there are systems for governing the movement of goods — inventory records, shipping tags and labels, and so on. Are these systems really independent of the order-taking system? If they are (and traditionally they have been so considered), then they should be

able to go on without regard for each other. But this is nonsense. No business makes a living shipping goods to customers who haven't ordered them.

No one questions that there is an essential relationship between the *functions* of order taking and/or shipping. But do these activities belong together in a *system?*

Here is the heart of the matter. The word "system" implies coordination. It implies the elimination of unnecessary duplication, of working at cross purposes, of waste in time, motion, or material. It implies a collective, coordinated set of activities. Ultimately it implies *integration.*

Thus, it follows that if the order-taking function is organized efficiently, so that it accomplishes its purpose without wasted effort, it has been systematized. If the shipping function has been organized to similar effect, it too has been systematized.

Systems combine into overall systems

So far, there are two separate systems. If it can be shown that the two systems work together in coordination as part of an overall scheme, with neither system operating in a way to duplicate needlessly the work of the other, or in a way to waste the time, work, or material of the other, or toward a purpose in unnecessary conflict with that of the other, then the two systems have themselves been systematized—or, in other words, integrated.

The process can be extended so that ultimately all of the localized systems in a company can be integrated with each other. When this occurs, it may be said that the limits of the "system" are the limits of the company itself and of its operations.

Thus it is obvious that the concepts of "integration" and "systematization" are indeed relative. There may be integration on a small scale or on a large scale. To say that a company has an integrated data processing system is meaningless until the scope of the system (or of the "integration") has been delimited.

Thus, the true concept of integrated data processing becomes clear. It means nothing more — or less — than the systematization, within the limits imposed by the needs and capacities of a company, of the flow and manipulation of the data essential to the conduct of the business. It remains to illustrate the concept.

It will be helpful first to define "automation." This term; which originated in the factory to describe the automatic movement of work in process (the automatic handling of materials) from one machine to another, has become very ambiguous through indiscriminate usage. It is usually considered to mean "automatic control." Commonly this means the automatic operation of a machine by some *external* mechanical or electrical agency —that is, without direct human intervention.

One such agency is punched paper tape. Punched tape can be used to control the operations of many kinds of machines, including typewriters, computing equipment, graphotypes, card punches, and so on. Equipment so controlled is said to be "automated."

There are, actually, a number of means by which machines can be controlled automatically. The agencies used for the purpose are generally called "common languages," and the list includes such media as punched cards, magnetic tape, and magnetized codes on paper.

The difficulty in limiting the word "automation" to machines controlled from an external source is that there are machines (the term is used broadly to include electronic, as well as mechanical and electromechanical devices) which incorporate in themselves a number of functions which might in other cases be performed by a number of separate machines, each controlled from without itself by a common language. The fact that the control has become "internalized" does not actually alter the significance of what the equipment does.

For example, if a tape-punching typewriter is used to prepare a sales order, and if the resulting tape is then used to operate an accounting machine which prepares the bill, this billing operation is said to be automated. Yet it is possible to obtain a single machine which performs the same functions. It does not seem reasonable to conclude that one is automated while the other is not, particularly when the latter arrangement may prove to be more efficient in a given situation.

It is probably fairer to consider that equipment is automated if it can be controlled automatically by some external non-human agent, or if it is sufficiently complex that performance of one operation can be used automatically to control the performance of a different (not an accessory) operation. Thus, the automatic printing of credit balances in red on an adding machine is *not* a form of automation, since this is in the category of an accessory function or a refinement, but the automatic computation of price extensions and totals on a machine used to type a sales order would be an instance of automated operation.

If the latter half of this definition is accepted, it is clear that automation implies a significant *degree* of automatic control. Thus this term, also, is relative to some extent.

Moreover, since a system may include some equipment which is automated as well as some which is not, it is evident that the degree to which automation is present in a data processing system can vary considerably. A data processing system may be integrated without being in the least automated. On the other hand, all of the equipment used in it may be controllable by automatic external means. Usually, some degree of automation is found in an IDP system.

It is really not surprising that there should be general confusion about the new developments in data handling when two of the basic terms—"integrated" and "automated"—are relative, rather than specific, in their application, and when another—"electronic" —is so often misapplied.

It is clear, however, if the foregoing definitions are agreed upon, that data processing may be either integrated or automated, or both, and at the same time may or may not contain electronic components. The terms often overlap, but not by definition.

Data should be repeated automatically

As has been pointed out, it is generally accepted that the basic principle of integrated data processing is the automatic perpetuation of repetitive data. In other words, information entered into a system must be entered in a form which permits it to be repeated, where necessary, without human intervention.

IDP does not, by definition, require complex equipment, although high-powered equipment *may* be used in an IDP system. This is true because the means of preserving data in a form for automatic repetition can be fairly simple. Carbon paper and duplicating masters can be used for the purpose in appropriate situations.

However, (and this is the method

most often associated with IDP), such data can be preserved by entering it into a form which can be read by a machine. The most familiar example in discussions of IDP is punched paper tape.

To use the classic IDP illustration, a sales order can be written in the following manner: A company doing regular business with a customer has a clerk type the name, address, shipping instructions, and/or any other repetitive information that is used regularly when handling one of the customer's orders. This information is typed on a machine that punches a paper tape as a by-product of the typing, or, if need be it can be encoded directly in the tape. The tape thus carries a coded equivalent of this basic information. When not needed, it can be filed in one of various ways.

When an order is received, the tape is drawn from the files and inserted in the reading unit of the same or a similar typewriter. Under the control of the tape the machine types out all of the information carried by the tape. This information appears on the necessary forms, properly spaced. The tape can be coded so that the typewriter stops to allow the operator to type in the variable information, such as the details of the current sale.

This typewriter has a punching unit as well as a reading unit. As it types, whether under tape or manual control, it punches a second tape which contains the original information, and, in addition, the variable information which has been inserted manually. The record of the order is now completely entered into a "machine sensible" form which can be used to operate other machines.

Many units read "common languages"

The tape may be fed into teletypewriter equipment of various kinds and used to transmit the data to remote places—the company headquarters, the factory, the warehouse, and so on. At each point to which it is transmitted the receiving unit may be used to punch a duplicate tape, for further processing, if required. Thus, at each point at which new data are added, the new information is entered into the system in a manner which permits further automatic repetition. When desired, the information can be "read out" of the system in printed form, or stored for later use.

If needed, the tape can be fed into a tape-to-card converter, so that the information in it can be entered into punched card form for use in punched card accounting. Or it may be converted into one or another of the other "common languages" described below.

It may be used entirely within one office, or, through the use of wire or radio, it may be transmitted to other offices at great distances from the source of the original data.

It can be used simply to distribute information, or it can serve as input to calculating equipment, including large electronic computers. (In some cases it is first necessary to convert it into another form, but this can be done automatically.)

The agent for integration (and in this case for automation also) is the punched tape which controls the various machines in the system automatically.

Such a system need not be complicated. An excellent example of an IDP system for a small company is described in a story beginning on page 23 of this issue. In this particular instance, it should be noted, computing equipment is not required, nor is the equipment elaborate. Standard teletypewriter units are used to transmit and acknowledge orders, preparing necessary forms simply and automatically.

It is not true, as this story shows, that integrated data processing is only for large organizations. Even if the IDP equipment is limited to teletypewriting units only, the possible systems applications are enormous. Consider, for example, some of the operations this equipment can be made to perform: It can handle multiple carbon interleaved sets and can prepare masters for offset duplication. It is capable of tabulation, both horizontal and vertical. It can print business forms such as orders, invoices, or checks.

All of these things can be done under automatic control, using punched paper tape. And while it is doing them, it can punch additional tapes for further automatic processing.

The essence of this kind of integration is the use of a medium by which one part of the system can transfer repetitive information to other parts automatically. It makes little difference, as far as the IDP concept is concerned, just what this medium is.

It is interesting that one of the best and most familiar of the common language media—the punched card—was never called a common language until after the IDP concept had become widely discussed and it was realized that the punched card, within its limits, actually was used in much the same ways as punched tape, to provide automatic control of machines.

What are the advantages of using a common language? It is obvious that since it can be used to give automatic control, certain types of systems can produce more work than before.

This does not necessarily mean a saving in cost, for the labor required is generally more highly paid, and the equipment is often expensive. Yet, some installations can bring real savings in clerical costs, and others make possible the performance of work which could not be handled efficiently without considerably enlarging the payroll.

A second advantage, however, is of equal importance. That is the *accuracy* of automatic data processing. Machine accuracy is very high. Electronic equipment has proved reliable. Consequently, if information entered into an IDP system is accurate to begin with, the possibilities of errors made in transmission, posting, or figuring are very much reduced. Increases in accuracy not only reduce losses due to errors, but also eliminate a great many steps otherwise required to verify the accuracy of the data.

Machines can be instructed in advance

A third advantage, also, is very important. A characteristic of many integrated systems is that they allow instructions to a machine to be determined in advance of the receipt of data. The machine can be "programmed" so that when data are received it can perform the necessary operations without further instruction. Electronic computers, in particular, may be programmed to handle complex sequences of operations, and provisions can be made for handling exceptions to routine that otherwise require treatment on an individual basis. Handling exceptions is the costly part of many bulk operations, since isolating and handling exceptions disrupts high-speed routines and usually requires the exercise of human study and judgment. Many of these exceptions, however, can either be handled directly by a computer, or at least automatically pulled from the data flow so that human aid can be summoned.

In installations employing a com-

HERE'S HOW

Eastman Tag gets faster processing from its new ADP order-billing-shipping system

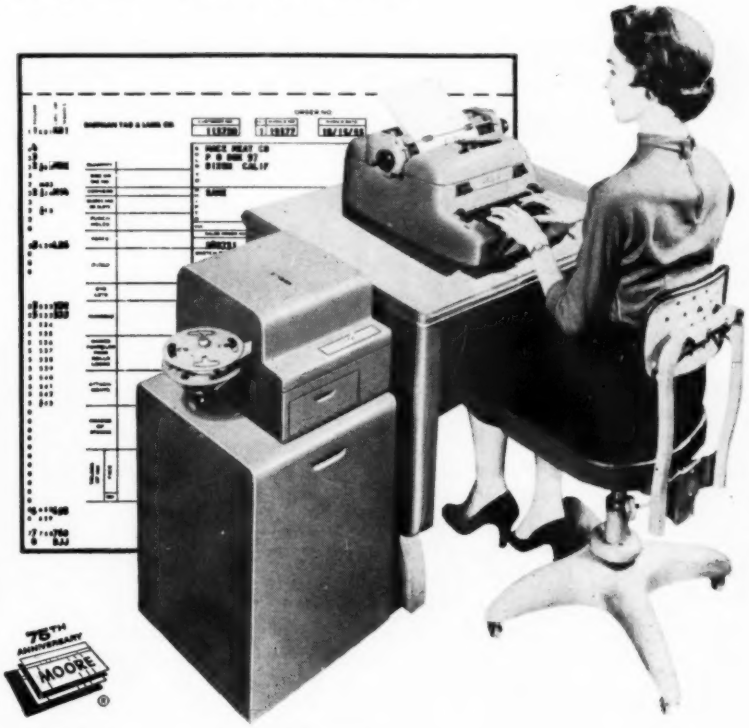
The Company's original method involved manual calculating, writing, checking, and copying operations in various departments during normal order processing. Whenever changes were incorporated, the entire order was reprocessed. Cards were manually key-punched for many operations, making secondary controls necessary.

Automated Data Processing eliminated these disadvantages. It provided faster processing, machine calculation, accuracy, and cost control with a minimum of manual operations.

The new ADP system uses a 9-part Moore Production-Acknowledgment-Shipping Order as the initiating form. The Order is typed on an IBM Typewriter Tape Punch which automatically produces a by-product punched tape for conversion to punched cards. The cards prepare all subsequent records . . . including the Invoice and Statement.

The Moore man, using Moore facilities, helped the Company's systems men in the scientific design and construction of the forms that fit the Automated Data Processing system. The Moore forms are: a 9-part Speediset Production-Acknowledgment-Shipping Order; an 8-part Speediflo Invoice Form; a 2-part Continuous NCR Statement; an 8-part Continuous Marginal Punched Stock Goods Order-Invoice.

If you would like to read the details in this booklet, write on your Company letterhead to the Moore Office nearest you.



75TH ANNIVERSARY MOORE

MOORE BUSINESS FORMS Inc

NIAGARA FALLS, N.Y. · DENTON, TEX. · EMERYVILLE, CALIF.

Since 1882 the world's largest manufacturer of business forms and systems. Over 300 offices and factories across U.S., Canada, Mexico, Caribbean and Central America.

puter, it is found that the extraordinary calculating speeds of the machine are capable of processing a tremendous volume of data. The speed of the computer is far greater than that of any machine that can supply the data.

Thus, to use a computer efficiently for large-scale data processing, it is necessary to employ some method for accumulating large volumes of data.

This can be done by accumulating data while the computer is not in use, a method which is not economically very sound for a company which cannot use the computer meanwhile for something else. It is a method suitable, however, for companies not owning a computer; data can be processed by a computer at a service center outside the company. This approach has been talked of from time to time. While its possibilities for bringing efficient methods to small companies are obvious, not a great deal of action has been taken to set up such centers on any large scale. This, presumably, will come.

Computers have huge data appetite

The usual method of supplying data sufficient to warrant keeping a computer on the premises is to use a whole battery of inputs. Data can be recorded at many different points in the system. If the company has a really large office operation, such as may be found in typical insurance companies, sufficient volume of work is already being done to keep a large computer going.

Often, however, company headquarters may not have sufficient work to justify keeping the computer, but when its work is combined with that of outlying offices, the volume may become sufficient. In such cases a problem arises as to how to get the data to the computer.

It is because of the enormous appetite of computers compared to the capacity of individual operations to supply data for processing that a marked tendency has grown up to transmit data to the computer through a network that may be nationwide in scope.

The data processing center opened last year at Camillus, N. Y., by Sylvania Electric Products Inc. is an illustration of this method. (See *Office Management*, March 15, 1957, Yearbook Issue, p. 56.) Data from nationwide company operations are fed into the computing center through an extensive — and integrated — wire network.

The effect of such a system is to create a combination of centralized data processing and decentralized management. This is a trend being seen increasingly as data processing technology advances.

One of the problems in developing IDP systems, therefore, is in obtaining source data. Ideally, information should be put into machine-sensible form as soon as it develops. For example, sales data should be recorded in a common language at the time and place of sale, if possible.

For this reason, cash registers have been fitted with tape punching accessories. Similarly, merchandise has been tagged with pre-punched tags carrying information about the merchandise in coded form; at the time of sale, the tag is fed into a reader, and with the aid of a keyboard, the sales clerk enters certain additional information, such as his number, discounts, taxes, and whatever else may be needed to record the sale. The reader combines this information into a punched tape which may be processed automatically thereafter.

It is obvious that as the sources of the data become more and more removed from the data processing facilities, the greater will be the number of data recording units required, and the more extensive the communication network.

This becomes a problem in economics. Both the data recorders and the communications facilities cost money. Consequently, much is being done to reduce the cost of original entry of data at the originating points.

Numerous kinds of machines are now available with facilities for punching tapes or cards. Cash registers, merchandise tag readers, and typewriters have been mentioned. Also available are adding and calculating machines, bookkeeping and accounting machines, and other equipment which can produce the common language entry as a by-product of some necessary operation. Thus a typewriter (or a teletypewriter) may be used in preparing a sales order which is used and filed in the normal manner, punching simultaneously a by-product tape which can be used to transmit the same information to other parts of the data processing system.

Ideally, this recording should occur as part of an operation that is necessary in any case—such as typing a sales order. Sometimes, however, it is necessary to use a keyboard of some kind to enter data into the system directly because it cannot be got there by any other method. Various types of equipment are available for the purpose, including typewriter keyboards and adding machines.

A further link is sometimes necessary: equipment to convert one common language into another. Thus, there are available a number of different kinds of equipment to make exchanges of information among such diverse common language media as magnetic tape, punched cards, punched tape, magnetic codes on paper documents, and printed characters designed to be "read" by character recognition devices.

One method, introduced within the last year, for reducing costs of data origination is a method for printing a special four-channel numerical code mechanically from standard adding, calculating, bookkeeping, accounting, and other machines. The system operates by a method of purely mechanical linkage with the working parts of these machines. The code is printed on a narrow paper tape and it may be converted to standard punched tape or punched cards through a process of photoelectric scanning in which the punch responds to light and dark areas on the tape.

New common languages developed

This printed tape thus becomes another in the list of common languages. It is more compact than standard punched tape since, not being perforated, it requires less paper strength. Currently it is available for four-channel codes.

Standard punched paper tape may be used in systems employing codes up to eight channels. It is the now conventional common language of much integrated data processing equipment. In a modification, the codes may be punched along the edge of a card, allowing differences in handling.

Both forms of tape have the advantage of compactness and ease of cutting and splicing. They are relatively inexpensive as common language media go, and are generally convenient to handle. They are not as flexible for uses that require sorting of individual records as are punched cards, but, when necessary, they can be converted to punched cards.

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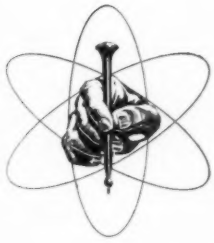

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COMPANY_____

STREET_____ **CITY**_____

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TYPE OF BUSINESS_____

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Punched cards have long been familiar. Like paper tapes, they are relatively inexpensive. They are bulkier than the tapes, but permit greater facility in sorting and unitized handling.

Magnetic tape is used largely within electronic computer systems, where it is used as the common language medium between components of the system. It permits input and output of data at enormous speeds, which, together with great compactness, is its particular advantage. It is more expensive than other media to handle, but coded information can be erased and replaced with new data almost without limit. So far it has not been considered feasible for use in recording source data at points remote from the computer.

Magnetic codes on paper documents have been developed considerably in the last year. Considerable study of the subject was made by the Technical Subcommittee of the Committee on Mechanization of Check Handling of the American Bankers Association. The subcommittee found that, with respect to checks, it was essential to record codes on the face of the check. In operations other than check handling, however, other organizations have begun to use equipment using documents carrying magnetic "stripes" on the reverse in which coded information can be recorded. Since the codes are supplementary to printed data, they may be used with documents that customers handle and read like conventional documents.

Magnetic codes are promising

Magnetic codes thus may be developed in several forms. Codes which are equivalent to the codes used on magnetic tapes may be printed directly on business forms. They can be printed invisibly, for the use of machines only, or with magnetic ink, for visual inspection when needed, as well as for machine handling.

Or, magnetic principles may be used in combination with the principle of photoelectric scanning of printed characters.

The latter makes it possible for machines to "read" printed material. This method, usually called "character recognition," is strictly visual and may be used in special cases when the printed symbols are standardized as to type and registration so that they can be compared with symbols stored in the reading machine; the printed characters are "read" by comparing them with the stored symbols. Such equipment may punch cards with information corresponding to that read.

By printing such characters in magnetic ink, it is possible to obtain the advantages of both the magnetic and character recognition methods. The latter, for example, permits the document to be read, and the coded material visually verified, with a minimum of effort. The codes may be carried as an adjunct to other information on the document. The magnetic principle permits a greater technical latitude in the applications in which the equipment may be used.

Recent technological developments in office automation thus have included the introduction of new common languages and the production of new means of recording data in machine sensible form at the point of origin.

Improvement of communications facilities is also under development. One of the major problems here has been that existing wire facilities were designed to handle five-channel codes. It has been found that codes with up to eight channels are more suitable for many kinds of work, particularly in making inputs to an electronic computer.

Thus it has been necessary to convert codes in other than five channels to the system used by the wire networks when transmitting data, and to reconvert them upon receipt. This, of course, is an additional step, requiring additional time and additional equipment.

It has been reported, however, that high-speed tape-to-tape transmission for codes of up to eight channels, complete with error detection and correction facilities, may become feasible in the near future. In addition, there appears to be a possibility that high-speed transmission of data directly between privately owned data processing units will be available reasonably soon.

In the meantime, other approaches to data transmission are being refined. For the conventional wire services, for example, automatic switching service is now available, so that messages containing a routing code may be directed automatically at relay stations into the proper channels for retransmission, and, upon receipt, even into specified receiving units. The latter development means that data can be sorted out automatically on arrival. For example, sales information may be recorded on one machine, payroll information on another.

One recent IDP installation uses telephone lines to transmit data in facsimile form. Instead of being punched into tapes, original information is typed or written on a form which can be copied by wire, in the same way in which subscribers to facsimile services may receive copies of telegrams in their own offices by electronic means.

Random access offers new techniques

Another technical advance has been the development of improved methods of obtaining what is known as "random access" to data stored in a system. Almost without exception, data processing in large offices has required accumulating data of a given type and summarizing the information before applying it analytically. For instance, the total sales of a given product during a period of time (which might range from a day to a month or more) would be summarized and the total subtracted from inventory figures or added to sales figures in one of their various breakdowns, or otherwise applied to existing summary records.

It has not been feasible to post each individual transaction to these summary records, because access to the records was burdensome and inefficient. To obtain practical efficiency, similar items were "batched" and handled collectively.

Batching, of course, results in a time lag between a transaction and the evidence of its effect on the summary record, such as inventory. This may or may not matter. But there are numerous instances in which management may find it useful to have the total picture within hours.

If inventory records can be kept current, for example, it is possible to know sooner when time has come to reorder. If the company can count on knowing immediately when stocks are low, it can rely on this information to avoid the need for maintaining larger inventory to cover possible errors in estimated sales. It can thus reduce inventory, and with it the space required to hold it.

The idea of being able to post each transaction as it occurs has long been a dream. Recently, however, there have been new developments which facilitate such a process. New types of random access equipment permit

the operator of an electronic system to enter the data from each transaction as it occurs into summary records. This has been made possible by means of reaching, quickly, the applicable portions of the records stored in the equipment. (Even large electronic computers, in spite of their incredible speeds, work best on batching methods, and are very much slowed down by the needs of random access.) Thus, "in-line" processing, in which all records affected by a transaction are posted individually and at once, is becoming feasible.

Some random access equipment uses a series of short magnetic tapes, some uses storage on magnetic drums, and another uses a series of magnetic disks. The search for data can be at once limited to the particular tape, portion of the drum, or the disk containing the data. It is no longer necessary to search the entire memory.

Random access is still an expensive item. However, the recent technical breakthroughs appear to be significant, and in-line processing is now available in many operations in which it was not feasible before.

It will be noted that in many cases in-line processing is most valuable in supplying management with up-to-the-moment data on company operations. The emphasis here is on the use of modern data processing to provide management with control information, rather than merely to speed the clerical operation.

This is a trend being widely acclaimed. Electronic data processing systems so far have shown signs of offering more value in terms of being able to supply better and faster information for management than for mere reduction of clerical expense.

Management, too, can be "integrated"

The trend, further, emphasizes the fact that the needs of management can thus, to a degree, be "integrated" with the internal operations of the office. This is an important development, for it brings the concept of integration into fuller view. It becomes clearer, too, that to achieve the most profitable kind of integration, it is often necessary to break down the usual boundaries between departments.

It is by this time a very familiar idea that integrated data processing is not possible without a thoroughgoing systems study. It has often proved true that companies which have made the necessary systems studies in preparation for electronic data processing have found therein the means of so improving their operations that electronic equipment was not needed. What they did end up with was integrated, rather than electronic, data processing.

The need for extensive systems work before installing integrated data processing is widely felt by those who have been close to the subject. The emphasis placed on the systems approach, in fact, is perhaps the most significant development of the times. For after all, it is the efficiency of the office that matters, rather than the particular equipment required, and this is obtained through proper systematization of office work, whether that be accomplished by the use of manual methods, mechanical devices, or electronic computers.

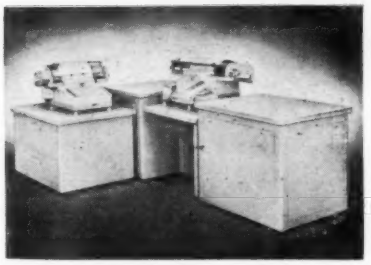
New systems made feasible

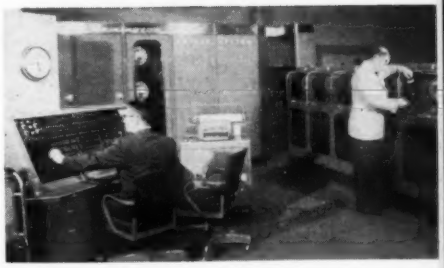
It is true, of course, that new equipment will make possible new systems, or at least, through reduced costs or reduced size, make it possible for smaller companies to use systems that previously were beyond their financial capacity.

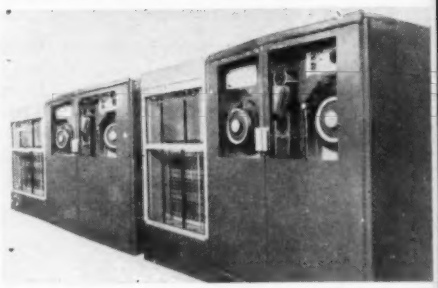
An important technological trend, at any rate, has been toward "miniaturization" of components. The obvious example is the use of the transistor to replace the vacuum tube. While some tubes cannot yet be satisfactorily replaced in this manner, there are all-transistorized computers in existence, and the trend presumably will continue.

An important effect of this trend is that the equipment becomes much more compact. It takes less space to accommodate it, and less structural support for its lighter weight; it uses less current, and since it generates less heat, it requires less extensive air conditioning (which can be a big factor in large electronic installations).

There is also an interest in specialized, rather than general-purpose,



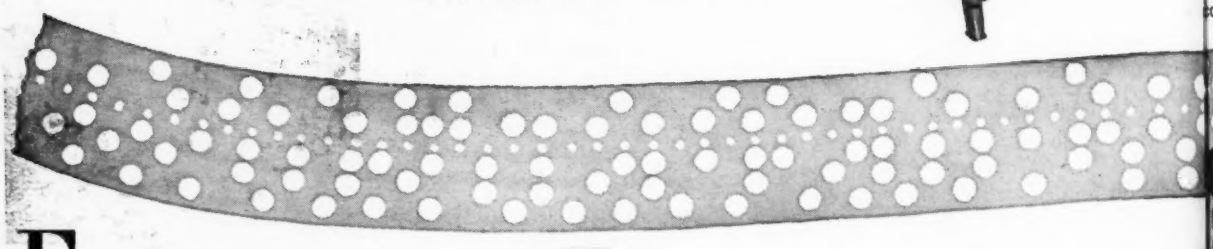




Electronic computers range in size from models hardly larger than a desk to giant systems costing millions of dollars. These examples are typical. *From top to bottom*: Underwood's Elecom 50; Bendix' G-15; IBM's 650 RAMAC; Burrough's (ElectroData's) Datatron; Remington Rand's Univac; and a portion of Datamatic's Datamatic 1000.

Friden Flexowriter®

. . . enables even small and medium-size businesses to make their accounting automatic. Whatever is typed on a Flexowriter—an invoice, for example—is also reproduced on by-product punched tape. Tape can then be processed by other common language Tape-Talk machines at nearest IDP center. Flexowriter tape can also be used to actuate address plate embossing machines, tabulating card punches, computers, and the same or other Flexowriters.



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By *tape* these new machines streamline office procedures. They originate, interpret, and process on tape both numerals and words. Chance of human errors in recopying is eliminated.

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Here is a new kind of *automatic office* world you can't afford not to learn more about. Call your nearby Friden agency or write FRIDEN CALCULATING MACHINE CO., INC., San Leandro, California . . . sales, instruction, service throughout U.S. and the world.

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has 10-key patented keyboard, Visible Check window for accuracy. Models available with or without automatic step-over of multiplicand. Specialized adaptations of the Friden Adding Machine actuate or are actuated by IDP machines.

Friden fully automatic Calculator

is the essential programmer in many IDP systems. Operating alone or in combination with other automatic machines, this famed Calculator performs more steps in figure-work *without operator decisions* than any other calculating machine ever developed.

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Friden Computyper®

s an IDP machine combining auto-natic writing and automatic calculating. quipped with automatic tape punch nd reader, it interprets and records oth alphabetical and numerical data. roduces tape enabling other machines o transfer data to punched cards or ccounting records; or data may be ent by wire to other offices. The Friden Computyper is widely used to system-ze billing, inventory, cost analysis, sales istribution, statistics, other typing-computing operations.

Friden Add-Punch®

is the 10-key adding and listing machine with tape punch mechanism. A key IDP unit, the Add-Punch "writes" punched tape while printing on adding machine tape. The punched tape can be interpreted by other similarly-equipped machines. Typical Add-Punch functions include recording of retail sales, sales audit, production and inventory control, and coding statistical data.

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COMMERCIAL CONTROLS

ROCHESTER, N.Y., SUBSIDIARY

Friden *brings you an automatic office*

equipment. Typical are some of the new electronic reservations systems being used by airlines and railroads, electronic file equipment for recording inventory, and a whole battery of equipment specifically designed to answer banking needs.

Whatever the new technological developments may be, it is always important to recognize from the outset that the office is basically a system for the handling of information. If it is to be effective as a system, its work must obviously be systematized. This has always been true, but in this age of spectacular technology, the understanding of what a system is must be broadened so that the office is seen as a whole, so that all parts of the office system are indeed coordinated with all other parts—so that the functions of the office are truly integrated.

It will be seen from the list that follows that the variety of equipment now on the market for use in integrated data processing systems is quite astonishing. That variety is such that it would be impossible to list, much less to describe, the possible combinations of it into office systems.

While the descriptions given below of the products now being offered cannot begin to cover the technical details which distinguish one machine from another, the list is given by way of guiding those who are interested in further researches to companies that can help them, as well as to indicate to the general reader some of the enormous possibilities inherent in the integrated data processing concept.

To many readers, the significant fact about this list may very well be the fact that it exists at all—that equipment of the kinds listed is actually on the market today—that IDP is not a dream but a fact of life in 1957.

The Manufacturers

Addressograph-Multigraph Corp., 1200 Babbitt Rd., Cleveland 17.

Graphotypes operated by punched paper tape, preparing metal address plates automatically. Addressograph E-K Magnetic Electronic Printer, manufactured by Eastman Kodak Co., is an electronic data processing system comprising a magnetic-tape-operated electronic printer, with speeds to 3,000 lines a minute, a selective punched-card-to-magnetic tape converter, and a selective magnetic tape recording system; the system can be used to print four-line addresses at a rate of 15,000 an hour.

Some of the company's addressing equipment includes features such as reproducing punches which ally it to punched card operations. In addition, the Multilith line of offset duplication equipment uses offset masters which can reproduce themselves and which can be prepared by automatic inputs.

Airborne Instruments Laboratory, Inc., Modac Div., Old Country Rd., Mineola, N. Y.

Line of Modac electronic data processing systems in the $100,000 price range, custom built. Line includes computers and card-to-tape converters. The systems are designed for such applications as sales analysis, inventory control, linear programming, production scheduling, etc.

Alwac Corp., 13040 S. Cerise Ave., Hawthorne, Calif.

This company was formerly known as Logistics Research, Inc. It offers two general-purpose digital electronic computers. The Alwac III E is in the $100,000 range; it has a magnetic storage drum, up to 16 magnetic tape transports; uses the binary coded decimal number system with automatic decimal to binary conversion; inputs are taken from Flexowriters, punched cards, punched tape, magnetic tape; outputs to line printers, Flexowriter, punched cards, punched tape.

The Alwac 800, with magnetic core storage and modular construction, is a large scale system. It can use up to 50 magnetic drums through one buffer, with up to ten buffers, and up to ten magnetic tape transports per buffer. Inputs from magnetic tape, punched cards, punched tape, and Flexowriters. Outputs to magnetic tape, punched cards, line printers, paper tape, and Flexowriters.

American Telephone & Telegraph Co., 32 Avenue of the Americas, New York.

Extensive line of communications facilities, based for the most part on the use of five-channel punched tape. Equipment includes the following: Number 19 automatic sending and receiving teletypewriters, creating punched tape as a by-product of normal typing, and with facilities for transmission and receipt; simultaneous "on line" transmission and "off line" page typing and by-product tape punching are possible. Number 14 transmitter distributors, for automatic transmission from punched tape. Number 14 sending and receiving typing reperforators for interchanging typewritten telegraph messages between two or more points, using direct keyboard operation; messages are received on tape carrying five-channel codes and corresponding printed characters.

Also teletypewriters, and a line of switching systems and selector devices.

The company is also doing research and development work on equipment to permit high-speed transmission of data in bulk over private line networks.

Ampex Corp., 934 Charter St., Redwood City, Calif.

Magnetic tape transport equipment such as is being used for input and output in a number of electronic computers and specialized systems (including mail addressing systems). Models are available with up to 11 data tracks for recording and reproducing digital information.

ANelex Corp., 150 Causeway St., Boston 14.

High-speed Synchroprinters for high-speed printing, with inputs from punched tape, punched cards, magnetic tape, or magnetic drums. Also magnetic tape transport equipment including Micro-Tapesteppers which advance tape only when information is received, to avoid blank spots in tape between codes.

Bell Telephone Laboratories, 463 West St., New York 14.

Research and development work for the Bell System. See listing under American Telephone & Telegraph Co.

Bendix Computer Div., Bendix Aviation Corp., 5630 Arbor Vitae St., Los Angeles 45.

The G-15 general purpose digital computer is in the $50,000 class. While primarily intended for engineering and scientific work, it has certain business applications using punched card and/or punched tape input. Alpha-numeric paper tape converter allows use with systems employing 5-, 6-, 7-, or 8-channel codes. Special feature allows computation while input and/or output operations are in process. Simplified programming system is designed to make programming easy and to make equipment suitable for "one-shot" programs.

Burroughs Corp., 6071 Second Ave., Detroit 32.

Burroughs' ElectroData Div. makes the Datatron electronic computer, in the medium-to-large-size category. Inputs from punched tape, magnetic tape, or keyboard; outputs to punched cards, punched tape, or printed forms. Accessory equipment includes new Cardatron input-output system which permits use of several punched card units simultaneously, and Datafile electronic filing system. Datafile units contain 50 separate 250-foot magnetic tapes, each stored in a static-free metal bin, designed to give quick access to filed data.

Because of the enormous speeds of large data processing systems, they cannot function efficiently unless supplied with huge volumes of data. As a result, large data handling centers are often connected to outlying offices through far-flung communications networks capable of handling data in "common language" form. In such a system, efficiency in routing and transmitting messages is vital. This is a message center installed by Western Union.

Burroughs also offers the desk-size E-101 electronic computer, for scientific, engineering, and business uses. A feature is a special pinboard for simplified programming. Inputs are normally made from a keyboard, but a punched tape input is available optionally which can accept 5-, 6-, 7-, or 8-channel tape. The E-101 is priced in the $35,000 range.

Series G high-speed printers take inputs from punched cards, and may punch cards and accumulate totals as well as print out at speeds to 900 lines a minute.

Sensimatic-to-Tape bookkeeping and accounting machines can produce 5-, 6-, 7-, or 8-channel punched paper tape as an automatic by-product of other operations. Some models punch cards.

The company also offers bank bookkeeping equipment. It has also conducted extensive research and produced equipment using magnetic or fluorescent codes printed on otherwise standard accounting forms, as well as specialized equipment reading numbers printed on forms.

Clary Corp., 408 Junipero, San Gabriel, Calif.

Some of Clary's standard adding machines and cash registers can be equipped to punch paper tape as a by-product of normal functioning. The Clary Print-Punch punches tape with up to 8 channels; it can be used with Ten-Key and Full-Keyboard adding machines. The company also offers electrical output machines which can be used for reading out or for automatic input to electronic systems. Numerical data printers capable of being operated remotely can add, subtract, total, and print, and can print and accumulate information from computers and other sources. Data printers, printing timers, and electrical input keyboards are also offered.

Commercial Controls Corp., Subsidiary of Friden Calculating Machine Co., 1 Leighton Ave., Rochester, N. Y.

Flexowriter line consists of a series of electric typewriters capable of reading and/or punching paper tape or, in some cases, the same codes punched along the edges of cards. Equipment is available for use with codes of 5, 6, 7, or 8 channels. Some Flexowriters, including models capable of proportional spacing, are intended for automatic typing, producing tapes as a by-product. Some are intended particularly to punch tapes used with automatic graphotypes, some for use with communications equipment, some for use with tape-controlled card punches and tape-to-card converters. Certain models (Programatic) read a program tape to control automatic typing and to provide "automatic selection of any portion of a form to be recorded in one or two different by-product tapes," as the company describes this operation.

Line also includes Motorized Tape Punches and Motorized Tape Readers.

New machines include: the Model FTCP-8, a tape and card punch which can type documents and create selective or composite punched tape or tabulating cards simultaneously; it is connected for this purpose to an IBM card punch. Also a Punched Paper Tape Regeneration Unit for duplicating 5-, 6-, 7-, or 8-channel tape, producing a composite tape from several individual tapes.

Tape-operated Justowriters are electric composing typewriters which create justified lines.

Dage Television Div., Thompson Products, Inc., W. Tenth St., Michigan City, Ind.

Dage offers a line of closed circuit television equipment. While this is not in the category of automatically controlled machines, it is being used in a number of automatic systems to speed the exchange of visual information, as in verifying signatures on documents or in such a railroad reservations system as that being used in Pennsylvania Station, New York. (*See Office Management*, April, 1957, p. 38.) The company has produced equipment for use on the 8,000 cycle band width (standard TV uses 4,000,000 cycle width), which makes possible transmission over less expensive channels.

Dashew Business Machines, Inc., 5996 Smiley Drive, Culver City, Calif.

Dashew has been particularly concerned with equipment providing original entry of data into automatic systems. The Dashaplate is a basic source of data. This is an embossed plate, of either metal or plastic, carrying basic information, which can be created automatically at speeds to 6,000 an hour by Databossers (controlled by punched tapes or cards) or manually on Datatypers. The Dashaplate can be attached to equipment by wiring, by adhesive, by slots that permit sliding onto a metal binding, by staples, or nails. In such uses it can serve as an identification tag. It can also be attached to ledger cards, books, etc. It can be copied manually on a Datawriter by a simple mechanical stroke, to produce such records as those used in inventory, production control, preparing purchase orders, and so on. Databossers, in addition to embossing the plates, can simultaneously thread and loop attaching wires, emboss sequence numbers, and notch or punch plates for sorting and coding; these processes can be carried on automatically. Databossers can read codes of 5, 6, 7, or 8 channels, as well as punched cards.

Datamatic Corp., 151 Needham St., Newton Highlands 51, Mass.

The Datamatic 1000 is a large-scale general-purpose electronic data processing system in the million-dollar range. It uses a special magnetic tape three inches wide for high-capacity storage and quick access. The equipment is considered particularly suited to sorting, merging, and file maintenance work in large data handling operations. The system includes facilities for magnetic storage and electronic computation. Converters, for both input and output, allow use of the system with various data sources, such as punched cards. Input, output, and central processing of different procedures can be handled simultaneously.

Dennison Mfg. Co., 300 Howard St., Framingham, Mass.

Print-Punch marking machines are used to prepare merchandise tags for subsequent automatic processing. The machines punch basic merchandise data in four- or five-channel code, and simultaneously print information (such as size, price, style number, etc.) that can be read easily by customer and sales clerk. From 20 to 25 columns of data can be both printed and punched, with additional printing capacity. Printing and punching rate is 200 stubs a minute. Copy changes can be made by setting a dial. Tags are processed by a reader which converts contents to punched tape or cards and adds variable data entered manually at time of sale.

Allen B. Du Mont Laboratories, Inc., 750 Bloomfield Ave., Clifton, N. J.

Although not IDP equipment, the Du Mont line of closed circuit television has applications in data handling systems in providing instantaneous visual transmission of information. The line includes a variety of components designed to be integrated interchangeably into the system.

Eastman Kodak Co., 343 State St., Rochester 4, N. Y.

Eastman has collaborated with Addressograph-Multigraph in special-purpose electronic data processing systems for mailing operations. Inputs are from punched cards. with conversion to magnetic tape and printing out of addresses at rates to 45,000 an hour.

The Kodak Listomatic Camera, distributed by Commercial Controls, uses punched card inputs to produce negatives for reproduction of directories and similar publications by offset and similar printing processes.

ElectroData Div., Burroughs Corp., 717 N. Lake Ave., Pasadena 6, Calif.

ElectroData's Datatron computer, its major IDP product, is described in the Burroughs listing.

Electronic Associates, Inc., Princeton Computation Center, Long Branch, N. J.

Analog computers, designed primarily for scientific and engineering work.

Electronics Corp. of America, 10 Potter St., Cambridge 42, Mass.

While current information was not available at press time, this company has manufactured a series of Magnefiles. These are electronic units about desk size, suitable for maintaining perpetual inventory information, with inputs from such sources as pre-punched merchandise tags, punched tape, or keyboard entry, and outputs to typewriters, punched tape, or punched cards. The equipment offers some computation facilities as well.

Farrington Mfg. Co., 76 Atherton St., Boston 30.

Special-purpose systems including Charga-Plate credit identification systems and Scandex, used to punch cards from inputs of printed numbers scanned photoelectrically.

Ferranti Electric, Inc., 30 Rockefeller Plaza, New York 20.

High Speed Tape Readers, with speeds of 200 and 400 characters a second, are used to convert codes in punched tape for input to computers and for similar uses. Tape

reading and control are accomplished by photoelectric means. Friction drive is used.

The company also offers two electronic computers, the Mercury (priced near $350,000) and the Pegasus (about $150,000). These are intended primarily for scientific work.

Fischer & Porter Co., Hatboro, Pa.

Fischer & Porter's automation activities are concerned primarily with industrial applications. The company manufactures a line of data reduction equipment used for readout from manufacturing processes.

Wm. A. Force Co., Inc., 220 Nichols Ave., Brooklyn 8, N. Y.

Force, well known for its numbering machines, introduced last year a special model that prints dots, dashes, or special characters in lieu of standard numerals. The codes are intended for use as inputs to IDP systems. The machine is intended for use on rotary printing presses. Documents bearing the codes may be scanned photoelectrically, or if the codes are printed in magnetic ink they may be read electronically.

Friden Calculating Machine Co., Inc., 2350 Washington Ave., San Leandro, Calif.

The Friden Add-Punch is an adaptation of a ten-key adding machine to punch a paper tape simultaneously with conventional listing on the adding machine tape. The Friden Add-Punch Sales Audit Register similarly creates a punched tape record for further processing; optional features include automatic programming and keyboard interlocks to prevent out-of-sequence entry of data.

The Model C Computyper is an automatic billing machine. Basically, it is a combination of an electric tape-reading-and-punching typewriter (Flexowriter) and a Friden calculator. It is so designed that entries made through the typewriter keyboard (or through the tape reader) provide the typed document and automatically control the computation of price extensions, additions and deductions, per cent increases and decreases, and other figures, the results being printed automatically. Simultaneously, a paper tape can be punched carrying the same or selected information. The unit is provided with program keys or can be controlled by programming instructions in tape.

The Model B Computyper, operated by a typist rather than a billing or calculating machine operator, takes price and quantity inputs from the keyboard and prints the complete bill automatically. Program keys are used.

Other products include the Friden Compu-Punch, a tape-punching calculator; a second Compu-Punch capable of punching cards; a Teledata Tape Transmitter-Receiver for feeding 5-, 6-, 7-, or 8-channel tape into and out of communications circuits; an Adding Machine Card Punch; and the complete line of Commercial Controls products listed above under Commercial Controls Corp., which is a subsidiary.

General Electric Co., Schenectady, N. Y.

General Electric is reported to be developing specialized data processing equipment, including designs to handle bank bookkeeping. The company is also making components for the new National Cash Register 304 computer.

The Haloid Co., 2-20 Haloid St., Rochester 3, N. Y.

Haloid, manufacturer of Xerox xerographic copying equipment, has developed a continuous printer currently used to record microfilm and opaque material. The company considers that this type of equipment has considerable promise for use in outputs from high-speed data processing equipment, using cathode tube projection.

Intelligent Machines Research Corp., 7019 Edsall Rd., Alexandria, Va.

IMR has been working in the field of character recognition. Equipment now available can read printed characters, both alphabetic and numeric. The line of Analyzing Readers can read this information and punch cards at rates from 100 to 180 a minute, and can perforate paper tape at speeds to 60 characters a second.

To facilitate character sensing, IMR offers a special Selfchek type face for graphotypes and typewriters (it will be available also for accounting machines and merchandise tag imprinters). This face is designed to be legible to the machine despite imperfections in the printing unit or defacement due to handling, and to provide self-checking features which cause the reader to reject any documents which cannot be read. Price range: from $20,000 to $150,000.

The company also manufactures character sensing equipment used in Farrington's Scandex system for oil company accounts receivable.

The IMR Balance Attachment is used to provide intercoupling between adding machines and card punches. With it, adding machines can be used to punch IBM cards. Price: about $1,500.

International Business Machines Corp., 590 Madison Ave., New York 22.

IBM offers an extensive line of electronic and punched card equipment. The largest of the electronic digital computers for business uses are those of the 700 series. Newest is the 709, with magnetic core storage, and a Data Synchronizer permitting simultaneous reading, writing, and calculating. It is intended for commercial and scientific or engineering work. The 705, also using magnetic core storage, with additional data storage in magnetic drums and tapes, is designed primarily for business data handling.

The 704, similar to the 705, is used primarily for solving complex scientific and engineering problems.

All of these are in the large, million-dollar-or-more class.

In the medium class (around $500,000) is the IBM 650. This system uses a magnetic drum. Basic input is from punched cards, but additional facilities can be used to provide magnetic tape input and output, printer output, magnetic core storage, and magnetic disk storage for rapid random access. The system is of the general-purpose type.

The 604 Electronic Calculating Punch is a smaller general-purpose computer, reading punched cards. The 607 is a larger version.

A development new in the last year is the RAMAC magnetic disk storage system, designed to facilitate random access and direct interrogation of stored data. It can be incorporated in such systems as the 650. The 305 RAMAC has its own input and output units and its own processing unit.

In addition IBM produces punched card equipment of all types, together with Data Transceivers for the transmission and receipt of data in punched card form, the Cardatype Accounting Machine, ticket converters for reading pre-punched merchandise tags, tape-to-card and card-to-tape converters, typewriter card punches, and typewriter tape punches.

The company also has a number of service bureaus at which computing facilities are available for companies not requiring full-time use of such equipment.

International Standard Trading Corp., 22 Thames St., New York.

IST is an affiliate of the International Telephone & Telegraph Corp. It offers a wide range of communications equipment. Included are a variety of teletypewriter models and related equipment. Depending on the model, the equipment is capable of reading and punching paper tape, printing out from tape, entering data on magnetic tape through keyboards, sorting and routing messages automatically, printing out from magnetic and paper tape, and other IDP functions.

International Telephone & Telegraph Corp., 67 Broad St., New York, N. Y.

Communications facilities. See listing above for International Standard Trading Corp.

The Jacobs Instrument Co., Bethesda 14, Md.

While information on current activities was not available at press time, Jacobs has made electronic digital computing equipment.

A. Kimball Co., 444 Fourth Ave., New York 16.

Kimball's line includes machines for prepunching merchandise tags with coded information for automatic processing. Tags and stubs may be printed as well as punched with basic sales data such as size, price, etc. At the time of sale, the tags may be inserted into a reading unit, and additional variable data, such as salesman's number, discounts, etc., can be entered manually. Punched cards for further processing are then produced.

Kleinschmidt, Inc., County Line Rd., Deerfield, Ill.

Kleinschmidt offers a line of teletypewriting equipment for use in communications. The line includes teleprinters, for producing printed pages; transmitting units which can be operated by punched tape or from keyboards; typing reperforators for receiving information on printed and perforated tape; and accessory switching and selecting equipment.

Laboratory for Electronics, Inc. 75 Pitts St., Boston 14.

This company's Diana is a large-scale general-purpose electronic data processing system

designed for both in-line and off-line data processing in applications such as inventory control, payroll, production control, accounts receivable, banking operations, etc.

Inputs may be taken from punched cards, punched paper tape, or from a typewriter keyboard. Outputs may be made to punched tape, punched cards, line printers, electric typewriters, or cathode ray tube viewers. Up to 80 input and output devices can operate simultaneously with each other and with the central compuer. Magnetic drum storage is used.

The equipment is designed for random access work, with average access time of ½ second, strictly random posting at 4,000 an hour, batch-type random posting at from 10,000 to 20,000 an hour, and sequenced posting at from 20,000 to 40,000 an hour.

Librascope, Inc., 1607 Flower St., Glendale 1, Calif.

Librascope manufactures a small electronic computer which is distributed by Royal Precision Corp. See listing under that company.

Litton Industries, 336 N. Foothill Rd., Beverly Hills, Calif.

Although information on current products was not available at press time, this company has made small electronic calculators and other equipment.

Logistics Research, Inc.

See listing under Alwac Corp., the new name of this company.

Marchant Calculators, Inc., 1475 Powell St., Oakland 8, Calif.

Marchant is reported to be redesigning its Miniac data processing system. The Miniac system, as originally introduced, centered about a medium-size electronic computer. The company offers a special binary-octal calculator, designed to simplify programming calculations such as may be required in devising systems for use with computing systems that employ the binary number system. The calculator provides automatic conversion between the decimal and binary systems, as well as performing necessary calculations.

Monrobot Laboratory, Monroe Calculating Machine Co., Morris Plains, N. J.

Owing to research and development work currently in progress, an up-to-date review of Monrobot activities was not possible at press time. The company has manufactured medium-size electronic data processing systems.

Minneapolis Honeywell Regulator Co.

See listing under Datamatic Corp., which is owned by Minneapolis Honeywell.

Monroe Calculating Machine Co., 555 Mitchell St., Orange, N. J.

Monroe manufactures a line of adding and accounting machines, some of which have been adapted to punch paper tape with codes of 5, 6, 7, or 8 channels for subsequent entry into IDP systems. These Synchro-Monroe machines produce tapes which can operate automatic typewriters, tabulating card punches, teletypewriter equipment. Some machines can operate a card punch directly.

Mountain Systems, Inc.

See listing under Airborne Instruments Laboratory, Inc., Modac Div., the new name of this organization.

The National Cash Register Co., Main & K Sts., Dayton 9, Ohio.

NCR offers IDP equipment of several types. To facilitate entry of repetitive data into common language form, the company produces tape recorders and card punches which may be attached to adding and accounting machines of various models, and to window posting machines for bank use.

The Sales-Tronic system uses a sales register, a media reader which deciphers prepunched price tags and customers' and clerks' tokens, and a paper tape recorder which takes inputs from the tags and tokens and punches a paper tape for later automatic processing. To bring this type of automation to smaller retail establishments which cannot afford the data processing equipment itself, it is anticipated that service centers can process tapes and supply complete sales reports within hours.

NCR has recently announced the development of its 304 electronic data processing system, a general-pupose system using an electronic computer, magnetic tape memory units, media converters, and high-speed input and output equipment. Magnetic core memory is used, and the computer is completely transistorized.

Post-Tronic equipment reads magnetic codes on paper documents.

Philco Corp., Tioga & C. Streets, Philadelphia 34.

Philco is reported to be about ready to introduce an electronic computer. Details were not available at press time.

Potter Instrument Co., Inc., 115 Cutter Mill Rd., Great Neck, N. Y.

While current information was not available at press time, Potter has made components usable in IDP systems, including high-speed printers taking inputs from magnetic tape, punched paper tape, and directly from computer systems; random access memory units; magnetic tape handling equipment: and punched tape readers.

Radio Corp. of America, Front & Cooper Sts., Camden, N. J.

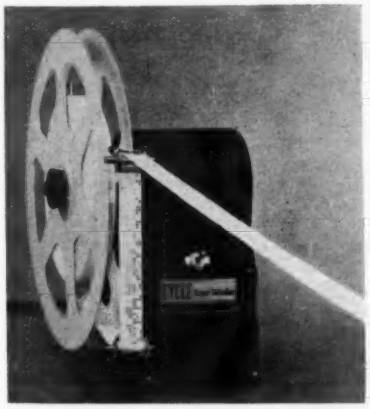
RCA offers large-scale electronic computers of the Bizmac line, at least one of which has been in the four-million-dollar class. Inputs include punched cards, punched tape, keyboards, and so on, with a variety of outputs available. One of the latter is an electronic printer, taking magnetic tape inputs; it makes use of a camera, a film processor to develop film, and an Electrofax printer capable of transcribing film images onto electrophotosensitive paper; exceptionally high speeds of output are reported.

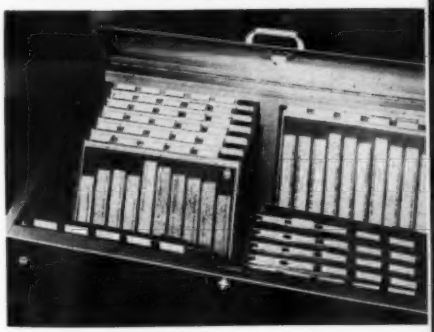
Raytheon Mfg. Co.

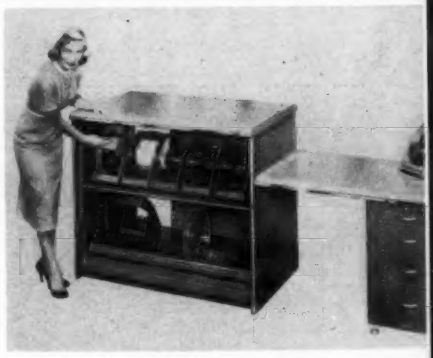
See listing under Datamatic Corp. Raytheon has sold its share of Datamatic to Minneapolis Honeywell Regulator Co.

The Ramo-Wooldridge Corp., 5730 Arbor Vitae St., Los Angeles 45.

Ramo-Wooldridge, which has contributed a great deal of research and development work to industrial automation, is reported to







The advent of office automation has brought with it the need for accessory equipment. Here, from top to bottom, are a winder for punched tape, panels for housing such tape, storage facilities for magnetic tapes, and a binary-octal calculator for use in devising computer programs. ***(Pictures by courtesy of Cycle Equipment, Visirecord, Tab Products, and Marchant, respectively.)***

be turning some of its attention to data processing equipment, including special-purpose types. Details were not available at press time.

J. B. Rea Co., 1723 Cloverfield Blvd., Santa Monica, Calif.

This company offers a line of Readix electronic computers in the small-to-medium size class. These are of the general-purpose type. The Readix Dual Computer uses punched cards and magnetic tape, is a completely decimal computer (with built in "Floating Point"), and is equipped to handle both research and development work and such business operations as payroll, sales analyses, labor distribution problems, etc.

Reeves Instrument Corp., 215 E. 91 St., New York.

No information available at press time on current activities.

Remington Rand, Div. of Sperry Rand Corp., 315 Fourth Ave., New York 10.

Remington Rand offers an extensive line which includes electronic computers and punched card equipment.

The latest in the line of large-scale electronic digital computers is Univac II, with magnetic core storage. Accessory equipment includes Uniservo units, reading from and writing on metal magnetic tapes; high-speed printers; punched-card-to-magnetic-tape and magnetic-tape-to-punched-card converters; Unitypers for typing directly on magnetic tape, etc.

Univac 120 and Univac 60 are smaller computers, using punched card inputs, with particular adaptability to such operations as billing, production control, statistical work, and scientific and engineering problems.

The Univac File-Computer, a medium-size system, features fast random access and is particularly intended for business operations of the "in-line" type. It is designed to handle up to 100,000 unsorted items in an eight-hour working day, matching these automatically with related file data, processing them and posting them as necessary to related records; these functions are carried out in the order in which the information arrives, without waiting for "batching." Typical applications are to inventory control, cost, payroll, and other operations.

Also offered are large Univac systems designed primarily for scientific and engineering work. The Univac Magnetic Computer employs Ferractors in the internal magnetic core system as substitutes for vacuum tubes, permitting substantial savings in equipment size.

Other equipment includes paper-tape punching typewriters, punched-card-to-punched-tape and punched-tape-to-punched-card converters, high-speed printers, Point O'Sale Recorders for reading pre-punched merchandise tags and converting data into punched tape, and such accessory equipment as magnetic tape storage facilities in mobile trucks.

The company also produces a complete line of punched card equipment, including punches, reproducers, calculating punches, sorters, tabulators, etc.

Royal Precision Corp., Westchester Ave., Port Chester, N. Y. (Products marketed by Royal McBee Corp., at the same address.)

The LGP-30 is a small, desk-size general-purpose electronic digital computer with particular application to engineering and scientific problems. A magnetic drum is used for memory. The computer accepts information from punched tape with 4, 5, or 6 channels, and can provide similar tape output or produce typed copy. Because of its small size, the computer operates on a standard 115-volt power supply. The unit is mobile. It is priced at $39,600 installed, plus shipping charges. The computer is manufactured by Librascope, Inc., a subsidiary of General Precision Equipment Corp.

Scriptomatic, Inc., 300-16 N. 11th St., Philadelphia 7.

Scriptomatic offers a line of addressing equipment, some of which may be controlled by punched cards. The equipment uses the spirit duplication principle, a portion of each punched card serving as the master from which name and address are printed. The cards may be sensed internally in the equipment, permitting automatic printing, skipping, and sorting. The addressing operation is thus integrated with other sensing, punching, sorting, and comparing operations.

The equipment uses any of the standard types of punched cards. While small hand models are offered, equipment for automatic selection is intended for large volume operations. Custom equipment may be ordered.

Shepard Laboratories, 480 Morris Ave., Summit, N. J.

Components for IDP systems. Details of current activities not available at press time.

Soroban Engineering, Inc., Box 338, Melbourne, Fla.

Line of IDP components includes the following:

Tape readers, for reading one or two perforated paper tapes. High-speed punches to perforate paper tape with codes of 5, 6, 7, or 8 channels at rates to 240 code groups a second. Verifying punches to verify data in punched paper tape; coding keyboard is used to compare re-entry of data with data in the tape. Comparators to compare and detect discrepancies between two tapes intended to be identical.

The Standard Register Co., Campbell & Albany Sts., Dayton 1, Ohio.

Stanomatic equipment is designed to read magnetic codes on printed documents and convert the information into a number of different common languages as required. Codes, in 5, 6, 7, or 8 channels, are preprinted by special typewriters, registers, bookkeeping machines, imprinters, or at the factory when forms are printed. The special ink or carbon is read electronically in the Stanomatic. Outputs may be to punched cards, magnetic tape, or punched paper tape, in codes with from 5 to 8 channels.

Stanford Research Institute, Menlo Park, Calif.

While not a manufacturer, Stanford Research has carried on research and develop-

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ment work in connection with IDP. It was active in the development of ERMA, a bank bookkeeping system based on the use of magnetic codes printed on paper documents.

Stewart-Warner Electronics, 1300 N. Kostner Ave., Chicago 51.

S-W Electronic Data Processing Unit is a small digital computer of desk size, using standard electrical power sources. Equipment is designed for such business applications as sales analysis, inventory control, billing, order processing, etc.

Also offered is Datafax facsimile equipment for the transmission of data over telephone circuits. The equipment reproduces printed and handwritten material, drawings, and other material.

Stromberg-Carlson, Div. of General Dynamics Corp., Rochester 3, N. Y.

Stromberg-Carlson is developing a computer readout device called Charactron, designed to display and record (on film) up to 15,000 characters of computer output a second.

Stromberg Time Corp., Main & Elm Sts., Thomaston, Conn.

This manufacturer of time recording equipment has done research work on time equipment for entering data in a machine-decipherable code. The company has acquired the rights to the Hillyer Transacter, a data gathering and transmitting device for reading fixed and variable data in several forms, and relaying the information to a central receiver for conversion to common language tape, punched cards, or for entry directly into calculators or storage units. This equipment is expected to be available in the near future.

Systematics, Inc., 60 E. 42 St., New York 17.

Line of "intercouplers" — equipment designed to interconnect standard business machines with card punches, tape punches, or other equipment, for transferring data from the business machine to a common language medium. Available are units to interconnect various brands of accounting machines, adding machines, billing machines, tape readers, etc., to key punches, tape punches, and other standard equipment producing machine-sensible media.

Technitrol Enginering Co., 1952 E. Allegheny Ave., Philadelphia 34.

Custom-built digital data handling equipment. The company has manufactured components from which electronic computer systems can be assembled. Included are the basic units of the data handling system itself and the accessory units such as power supply, cabinets, etc.

Telecomputing Corp., 12838 Saticoy St., North Hollywood, Calif.

Telecomputing manufactures the Point O' Sale Recorder, for reading pre-punched merchandise tags and producing punched paper tape carrying the information coded in the tags, plus additional data entered manually by a keyboard as necessary. The tape is then available for automatic processing in other IDP equipment. This equipment is marketed by Remington Rand.

Auto-typist hits letter typing right on the button

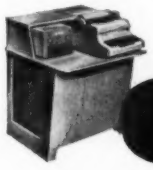
Push-button automatic typing is bringing automation to the handling of office correspondence. Now typists push buttons instead of keys, and Auto-typist machines take over and do the typing. They do it in marvelous fashion, too—turning out letters at 2½ times the speed of the fastest typist—neat, erasure-free, error-free letters that are as personal as your signature.

Well over half of general office correspondence is routine—or can be standardized. Sales letters, order acknowledgements, answers to inquiries, and collection letters are only a part of the correspondence that can be handled faster, easier, and more economically by Auto-typist. One typist can turn out 100-125 letters each day with an Auto-typist—3 to 4 times normal manual typing output.

How Auto-typist works—Precomposed letters and paragraphs are perforated on a wide paper roll. This perforated roll operates the typewriter keys. As much as 250 lines of copy can be stored on one roll. Twenty to thirty complete letters can be prepared, or a series of paragraphs which can be combined to make up dozens of letters.

Salutations are manually typed. Then, by pushing the button or buttons that correspond to the letter or paragraphs desired, Auto-typist automatically picks out the letter wanted, or assembles the paragraphs in the order desired, and types each word as if it had been done by hand. Manual insertions of personal or variable data can be made in any part of the letter.

Present users include banks, manufacturers, insurance companies, hotels, publishers, retailers, fund raisers. Applications range from general correspondence typing to specialized uses such as new account promotional letters. The complete story is yours for the asking. Just write us on your letterhead.



Auto-typist

AMERICAN AUTOMATIC TYPEWRITER CO., 2323 N. PULASKI RD., CHICAGO 39, ILL.
MANUFACTURERS OF AUTO-TYPIST, COPY-TYPIST AND CABLE-TYPIST

The Teleregister Corp., 445 Fairfield Ave., Stamford, Conn.

Teleregister manufactures specialized equipment including the following:

Passenger reservation inventory control systems used by transportation companies. The equipment keeps track of reservations made and remaining space, and can be interrogated for current space information. New reservations, when made, are automatically taken into account to keep space status up to date. The equipment is used in network systems, with the information records maintained centrally.

Teletype Corp., 1400 Wrightwood Ave., Chicago 14.

Teletype offers an extensive line of communications equipment. The list includes the following:

Page printers, to print complete pages of data received by wire; some models receive only, others both send and receive. Tape perforators for punching paper tape. Transmitter distributors to sense the punched code and transmit it by wire. (Some equipment uses fully punched tape, other equipment uses "chadless" tape, in which the perforations are only partially punched, remaining "hinged" to the tape to provide a printing surface.)

Typing reperforators, for receiving coded impulses and for punching tape and printing on the tape. Composite sets, each consisting of a perforator transmitter, a transmitter distributor, and a page printer. Message relaying equipment, and other IDP facilities.

Some page printers, transmitter distributors, and reperforators operate on a 6-unit code.

Typatape, Inc., 60 E. 42 St., New York 17.

Typatape offers a new method of recording data in common language form by means of strictly mechanical attachments to standard business machines. A small recording unit is attached to conventional adding, calculating, or accounting machines, cash registers, etc. It prints a four-channel numerical code on paper tape one-quarter of an inch wide, the process being carried on as a by-product of normal machine use. The tape is narrower than punched tape, and since it is not perforated, uses a lighter weight of paper.

Codes are printed as combinations of squares of inked and blank areas. The tape is fed into a converter which scans it photoelectrically, using this input to produce corresponding punched cards for subsequent automatic processing.

Because the recorder can be attached to existing machines, because it is entirely mechanical in operation, and because it is priced at $900, the company considers it an economical method of obtaining data in common language form. The converter is priced at $5,000.

Underwood Corp.

Underwood's IDP equipment ranges from devices to record data in common language form to electronic computer systems.

The new Dataflo line consists of electric typewriters, tape punches, tape readers, ten-key numeric data input keyboards, etc., which can be interconnected as necessary and provided with programmed control, in order to produce paper tapes. These tapes later can be used to punch cards or for inputs to computer systems. Dataflo components can use codes of 5, 6, 7, or 8 channels. Typical applications include billing, production control, payroll, purchasing and receiving, etc.

The Elecom 50 is a small (about $30,000) digital electronic computer and accounting machine. The computer section has a magnetic disk storage unit. Printed output is provided by one or two accounting machine carriages. One or two paper tapes may be used for input, and output may be directed to one or two such tapes. A standard ten-key keyboard may also be used for input. The Elecom 50 is particularly designed for such applications as job cost analysis, accounts payable, sales, public utility billing, tax billing, inventory control, etc.

Victor Adding Machine Co., 3900 N. Rockwell St., Chicago 18.

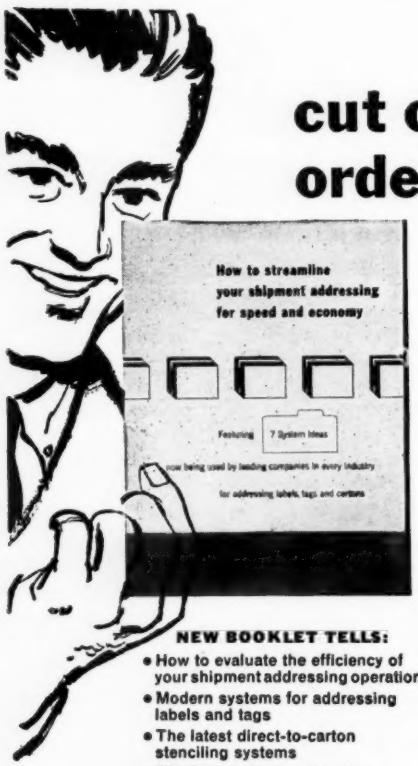
Victor offers the Digit-Matic, a digital printer which can list or list and perform arithmetical functions. It can read uncoded decimals, with inputs from common language codes through translating units, and can print at speeds up to three ten-digit lines a second. It may therefore be used as an output from automatic systems.

Wendon Co., 17 Irving Ave., Stamford, Conn.

While information on current activities was not available at press time, Wendon has manufactured small tape perforators for punching data in codes of 5, 6, or 7 channels.

Western Electric Co., Inc., 195 Broadway, New York 7.

Western Electric is the manufacturing branch for the American Telephone & Tele-



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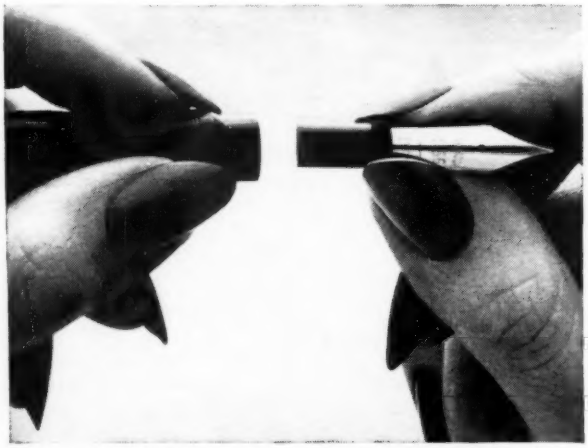

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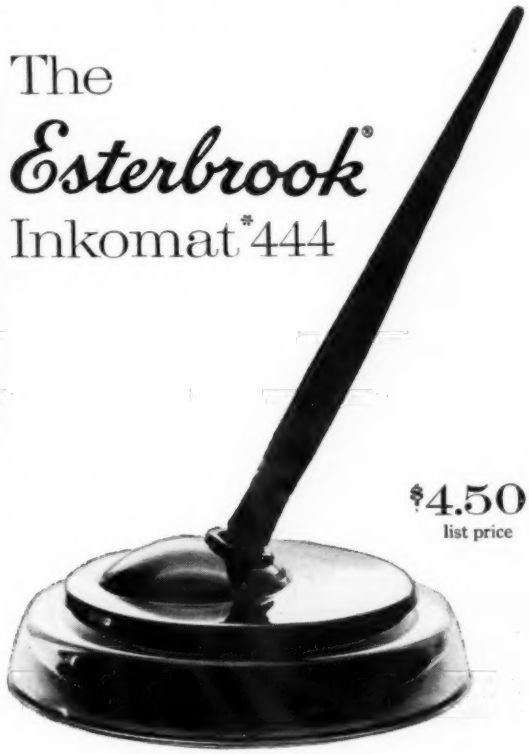

$4.50 list price

Choose exactly the right point for every writing job – from Esterbrook's 32.

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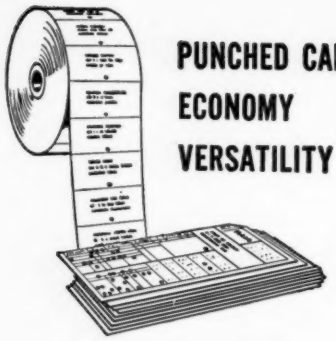

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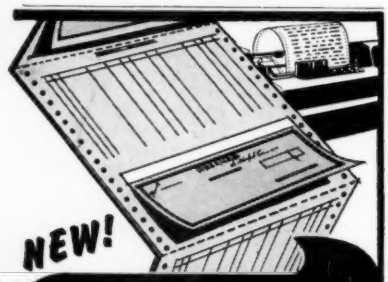

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graph Co. Equipment is handled by the Teletype Corp., a subsidiary, and is described under the listing given that company.

The Western Union Telegraph Co., 60 Hudson St., New York 13.

Western Union's IDP facilities include not only a nationwide network of transmission lines, but a wide range of communications devices as well. The equipment includes the following types:

Sending and receiving page teleprinters, with facilities for producing punched tape as a by-product. Type 19 Sets, which can be used to record information in punched tape and transmit it. Tape perforators for punching paper tape.

Switching center equipment, which includes devices for automatic switching of messages, "torn tape" equipment, and devices in which switching is accomplished under pushbutton control. Automatic numbering machines to guard against misrouting or loss of messages. Sorting equipment, for sorting out messages, as a control for automatic routing.

Facsimile equipment, which can be used to transmit visual copies by wire of written, drawn, or printed material.

Accessories and Services

American Lithofold Corp., 53 W. Jackson Blvd., Chicago.

American Lithofold offers Lithoset units and Lithostrip continuous forms carrying pockets in which punched paper tape can be carried for storage and travel with the printed records to which they are related.

Cycle Equipment Co., 17480 Shelburne Way, Los Gatos, Calif.

Line of Universal Tape Minders and Standard Model Tape Minders, for handling punched paper tape. The units are slave machines which start and stop automatically as tape is fed or as feeding ceases. They are used to handle tapes used in communications systems.

Dresser Products, Inc., 152 Wheeler Ave., Providence 5, R. I.

Dresser offers a line of electric and manual folders, winders, and rewinders for punched tapes, and also for adding machine tapes. Also available are various filing units and accessories for punched tapes, including file folders, binder pockets, envelopes, etc. Punched card envelopes and other accessories are also offered.

Monarch Metal Products, Inc., New Windsor, N. Y.

Line of accessories and filing equipment for punched cards. New is a series of storage cabinets (with and without doors) and trays for the storage of magnetic tape. Tape trucks are also available.

Moore Business Forms, Inc., 900 Buffalo Ave., Niagara Falls, N. Y.

Moore offers an extensive line of forms for use in ADP systems, with research facilities for the development of the forms required in such systems. The company also manufactures a number of devices for use in handling such forms. Among these are the Formaliner and a Vertical Spacer, for quick alignment of continuous marginally punched forms during their preparation; these accessories may be used with tape-punching typewriters. Also, such equipment as decollators and stands, imprinter-detachers, deleaving attachments, short-form cut-off machines, etc.

Systems Sales Co., 13 Broad St., Binghamton, N. Y.

Line of storage equipment and sorting stands and carts for use in the handling and storage of tabulating cards, and for the storage of single, double, and triple control panels. Accessories for use with electronic computers.

The Standard Register Co., Campbell & Albany Sts., Dayton 1, Ohio.

Standard Register's IDP Workshop is used for the design and testing of forms for use in IDP systems. The workshop contains a wide variety of IDP machines and devices. The facilities are available for research. It also offers forms for IDP, together with accessory equipment for the handling of forms.

Tab Products Co., 57 Post St., San Francisco 4.

Accessories for punched card systems, including files, card punch desks, racks, card trucks, control panel storage equipment, etc. Also a line of accessories for magnetic tape, including storage cabinets, reel handling equipment, mobile trucks, and special desk type equipment.

Uarco, Inc., 7902 S. Ashland Ave., Chicago 20.

Uarco, manufacturer of business forms, has opened a new Machine Systems Laboratory containing a variety of IDP machines, for designing and testing of IDP systems. In addition to its business forms, the company also offers equipment for the handling of forms, including tabulating card bursters, forms bursters, deleavers, etc.

Visirecord, Inc., Copiague, L. I., N. Y.

Visirecord offers a variety of equipment for the storage of IDP common language media. These include filing cards (of the "vertical-visible" type) with pockets for punched tape, or with the cards themselves capable of being punched along an edge with IDP codes. Also offered are plastic tape panels, plastic channel cards, and new Visisleeves which provide visible indexing for use in random sequence filing and finding of tape packs of variable lengths.

Wheeldex & Simpla Products Inc., 40 Bank St., White Plains, N. Y.

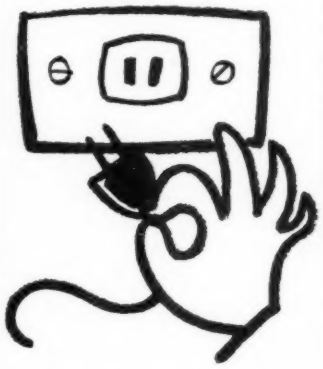
Wheeldex, manufacturer of mechanized rotary card files, offers equipment for housing IDP tapes for ready accessibility, either alone or in combination with related records. Simplawheel and Simplafind mechanized files may be used as the basic housing units.

Whiteford Laboratory, 420 Market St., San Francisco 11.

Whiteford produces a new electric winder for common language tape, with variable speed and tension, and other features. It is designed to operate, as the company expresses it, "at the command of the output without supervision or adjustment."

THE COFFEE BREAK IS HERE TO STAY!

Control it best with Kwik-Kafé



When you install hot coffee dispensers in the office, the idea is to see *how much*, not how little, coffee will be consumed.

Because if only a few employees use the dispenser, you can depend on it that the majority are getting their coffee elsewhere.

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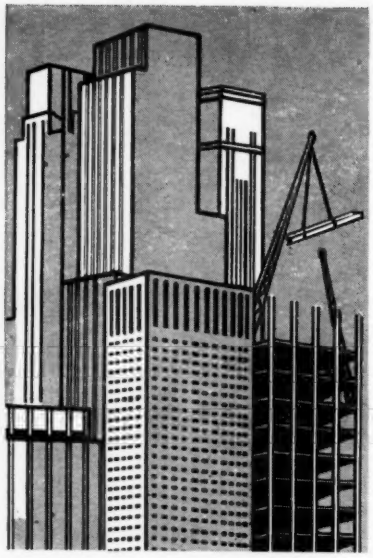

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Banks—

(*From page* 33)

in one newspaper which stated it was "a handsomely furnished reception room fitted up with the richest carpets and draperies and upholstery, in which the fair customers may cut coupons and eat bonbons with equal comfort and relish." Widespread sentiment associated with the old Gold Room prompted Mr. Simmonds' promise to duplicate the room in the new quarters.

Contrasting sharply with the contemporary design of most of the bank's quarters, the new Gold Room retains its former gold damask wall-coverings (actually cut from the same bolt of cloth as the original), white and gold woodwork and mahogany writing desks. Over the mantelpiece hangs the painting of the *Temple of Love,* commissioned by Mr. Frissell more than 40 years ago.

Another interesting design note is provided by three conference rooms on the main floor decorated to reflect the bank's 173-year-old background. Two rooms, one fashioned in Georgian and the other in Colonial, represent the bank's beginnings, while the third bridges the gap to the present in its completely contemporary treatment.

Richly carpeted in striking color contrasts, the entire office area attracts the eye with its combination of warm, soft color tones in upholstery, floor and wall coverings and the many paintings and prints.

The long, wide aisle leading from the main entrance to the tellers' cages on the main banking floor is flanked on each side by the offices' platform—two large areas carpeted in Firth Gold Chenille (Indust quality) and bordered by a black bronze railing. At the far end of the aisle, directly behind the tellers, the panel of Marquina marble encases the newspaper announcement. A "book-matching" technique, whereby each oblong block of marble is matched to the others, provides an easy flow of veins in the marble to extend unbroken throughout the entire panel.

The lighting on this floor reflects the current trend toward use of recessed lighting fixtures, flush against the ceiling, in large work areas. Intensity of light can be controlled by switches which vary the amount of light according to the degree of sunlight seeping in through the large windows. Although the building itself is air conditioned, the bank maintains its own controls to fluctuate the temperature without disturbing the other tenants.

Behind the wall containing the marble panel is a short corridor which opens into the three period conference rooms. Neighboring this area are a "functional" conference room and the famous Gold Room. Two rear elevators connect all levels of the bank.

The second floor, containing the trust and investment counsel departments, Mr. Simmonds' office, board room, three private dining rooms and a kitchen, is a study in efficiency of layout combined with comfort. Executive areas are grouped together, and the clerical rooms are large enough to accommodate more desks than are now placed there. The third upper level houses the office of the vice chairman of the board, the telephone room and a storeroom.

Walls of the officers' board and dining room are covered in Marie Nichols Pandanus, and wood office furniture is used extensively in executive quarters both on the second floor and in other sections of the bank.

Art, music brighten offices

Various prints of New York City, obtained from the New York Graphic Society, and paintings from the Milch Art Gallery and Midtown Galleries brighten corridor walls, and room controlled music-while-you-work is piped to every floor.

The land on which the building stands was sold by The Bank of New York to the Metropolitan Life Insurance Company which constructed and now owns the structure. Architectural firm was Voorhees, Walker, Smith & Smith, New York, and builder was Starret Bros. and Eken, Inc., also of New York. Home office of the bank remains at 48 Wall Street in the building in which it has been located since 1928.

Only a stone's throw from the former sites of Sherry's and Delmonico's, two famed landmarks in an era of brownstone elegance, the new office has marched confidently with Mid-Manhattan into the rapidly-changing contemporary world. But, justifiably proud of its long and colorful history, "The Bank" has retained echoes of the past in which the seeds of its modern development were nurtured.

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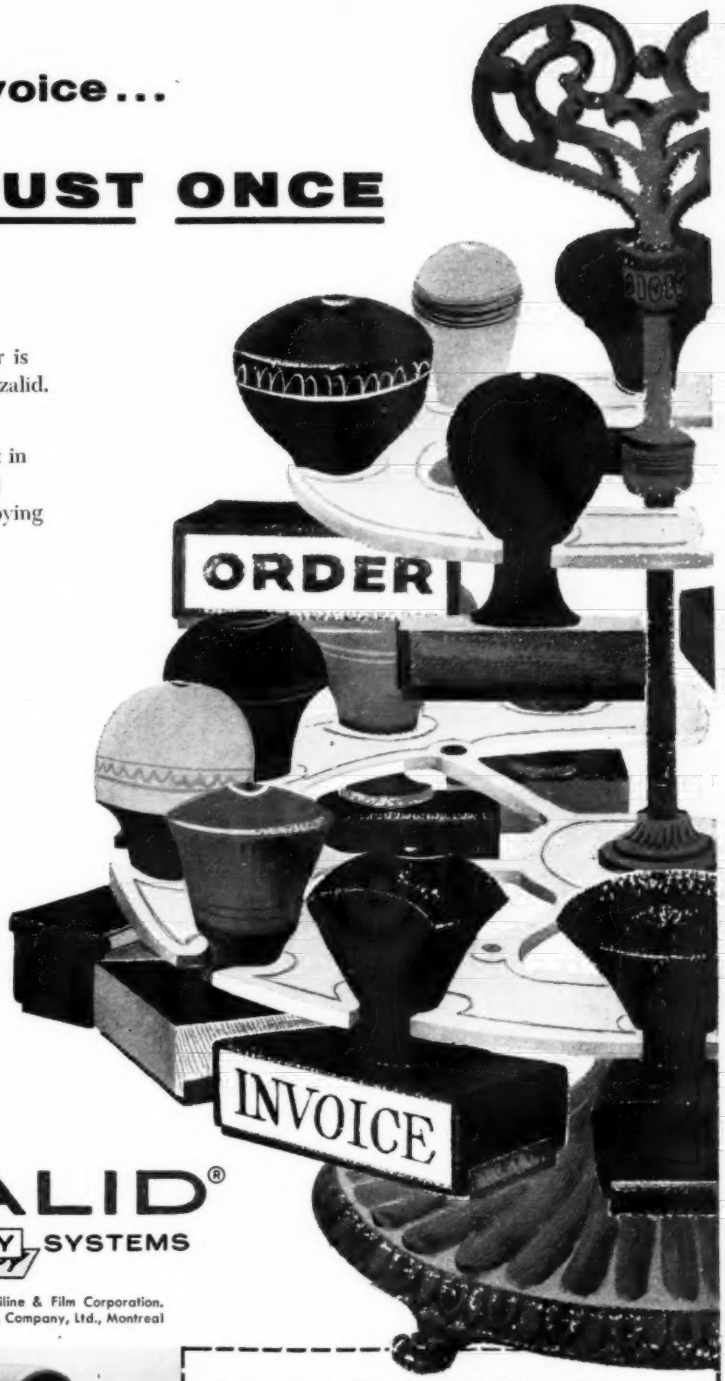

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(*From page 27*)

ices and postal rates are cut-and-dried matters, that there is no room for the exercise of discretion, and that whatever the company spends for postage represents the irreducible minimum. From this thinking, in turn, comes an unconscious acceptance of the philosophy that the mail department and its personnel, since they are engaged in a function which is relatively inflexible insofar as economies are concerned, is of low priority among the pressing problems which engage management every day.

The effects of this kind of thinking can best be summed up in a comment made to the author by the head of the mail department in one of the country's largest financial institutions. The management of this company is known for its progressive and cost-conscious thinking. The company employs more than a hundred people in its mailing operations and spends well over $1,000,000 annually in postage. The department manager, in commenting on the anomaly of his situation remarked that in an organization like his, where every penny of expense and every hour of clerical time was accounted for with the greatest of care, he could easily spend an extra $200,000 in postage beyond what was really necessary, and that no one in top management would raise a question about it.

Another instance resulting from the management philosophy that mailing operations are relatively incapable of improvement or economies was found in the headquarters of a large publishing company. This organization is among the foremost exponents of direct mail selling and can literally be said to live by mail. In this instance, the outgoing mail function, which was staffed by more than fifty people, disbursed over $1,500,000 a year in postage. It was set up as a sub-section of another department, and directed by an individual with the title of Assistant Section Head. Because of the wide gulf in rank between the head of the mailing operation and the heads of the departments originating the material to be mailed, liaison was poor, and waste of postage and mail department labor was excessive. A careful survey of the mailing operations here, as well as investigation of company policies which dictated the type volume, and scheduling of the material mailed, developed annual savings in postage costs alone, of over $150,000.

A Post Office Department spokesman made the statement only last month that, "Millions of dollars are wasted every year because of the public's lack of knowledge of postal services, and poor mailing practices." Since business organizations account for 75 per cent of all first-class postage, practically all second- and third-class and the greater part of parcel post and air service, the "public" referred to is for all practical purposes actually the business community.

The instances of extravagance which the post office has the opportunity to observe, substantial as they are, bear the same relationship to the total waste in postage and mailing labor costs by business organizations as does the part of an iceberg which shows above water, or roughly 10 per cent. Post office authorities can readily identify evidence of excessive postage paid on a given piece, the use of air mail to points where surface mail is as fast, incomplete or inaccurate addresses, multiple letters to the same address, and the like.

Analysis shows greatest economies

The really significant economies in mailing operations and improvements in service which a company can realize come only from on-the-scene, careful examination of the company's specific problems and needs. For instance, it is frequently found in companies where occasional large mailings are made, that inadequate advance notice is given to the mail department to permit scheduling of the proper personnel and equipment for the job. When this happens, the results may involve hundreds of hours of avoidable mail department overtime, and the use of classes of service to insure timely delivery of the mail requiring twice the expense for postage which would have been necessary with adequate planning.

Following are a few examples of actual incidents which demonstrate the scope of savings—or of extravagance—possible in a typical corporate mailing operation.

A large automotive supply manufacturer obtained 12,000 identical gifts last year for various customers and business associates. These packages were mailed shortly before Christmas via parcel post "special delivery" service. This feature cost the company 45c extra for each package. Delivery could have been completed well before the desired date by the use of "special handling" service at a saving of 25c on each package, or a total of $3,000 on the entire mailing.

Another instance involved a magazine, which was planning a mailing of 150,000 pieces. This mailing involved four enclosures in an envelope, and a test-weighing of the proposed material indicated that the aggregate weight was slightly over one ounce. Since the mailing was to go via first-class service, each piece would have cost 6c. One of the enclosures was modified by trimming ⅛ inch off one margin. This insignificant change was sufficient to reduce the total weight below one ounce and save $4,500 in postage on the mailing.

A utility company, testing returns received from monthly billings, found that there was no identifiable adverse effect from eliminating the reply envelope which had been used for many years. The volume of bills sent out by this company was such that eliminating the envelope resulted in a monthly saving of $2,700.

An insurance company in the Southwest required its branch offices, located in twenty-two states, to forward new policy applications to the home office via special delivery mail. Since the company picked up its own mail at the post office six times daily, a test was made to determine how much time was being saved by the use of special delivery service. It was found that because of the frequency of pick-up, matter sent via special delivery actually took much longer to reach the office than regular mail. Special delivery service was discontinued and resulted in a weekly saving of $110.

A large cereal company offered a premium which consisted of printed matter, in promoting the sale of a new cereal. Over 200,000 requests for the premium were received and filled, all by first-class mail. The material in question could have been sent by third-class at a saving of $3,000 in postage.

A financial institution in the East had for years made a practice of mailing 20,000 sales promotion letters every

month. Each of these letters contained a reply envelope bearing a three-cent stamp. An analysis of the replies to these mailings showed a response of about 10 per cent. The envelope enclosed was changed to a "business reply" type on which postage in the amount of four cents is payable, but only if the envelope is returned. This simple change resulted in a net monthly saving in postage of $520.

Lest it be assumed that important savings in mail operations can be realized only in large organizations, and as the result of broad, sweeping revisions, consider the following two incidents.

A bank, using a standard type postal scale, found after checking the scale for accuracy that it had become sufficiently out of adjustment from heavy use as to be responsible for overpayments in postage averaging $6.00 per working day. Based on 250 working days in the year, this apparently minor and unspectacular oversight was costing $1,500 per year.

A small company, using a postage meter machine, was spoiling no more than a normal number of envelopes and meter tapes per day in running material through the machine. As a result of inadequate instructions to the mail clerks, these spoiled envelopes and tapes bearing metered postage impressions were thrown out with the waste paper each day. When this practice was discovered and a test made, it was found that an average of $3.50 worth of postage per day was being lost, or roughly $875 per year. This situation was quickly corrected, and spoiled envelopes and parcel post tapes are now brought to the local post office for a credit equal to 90 per cent of the face value of the postage represented.

It is easy to underestimate the true significance of savings like these. They are not one-time benefits, but permanent, repetitive reductions in operating costs. For instance, over a ten-year period, a saving of only $6.00 per working day in postage would add up to more than $15,000, while a $500 monthly saving would be worth $60,000.

Insurance on parcel post mailings is always worth a close scrutiny. In many instances, insurance may be obtained from private insurance companies at lower rates, and for higher limits than are available from the post office. One organization announced recently that it had shipped more than 10,000 packages which had been insured by the post office over a period of eight years without sustaining a single loss. This experience is typical of those which have induced many companies to become "self insurors" of their parcel post. They have found after careful analysis of the number of their shipments, the cost of insurance, number of losses, and the average amount of loss, that they could afford to take the calculated risk of not buying insurance at all on their parcel post, and pay for the infrequent losses encountered out of their own pockets.

Air mail service is one of the most likely areas for realizing postage economies in any company. An insurance company in New England made a practice of sending most of its mail late in the day via air service. After a series of complaints indicating delays in receipt of this mail, it was found that the company truck which took the mail to the airport each evening had been consistently missing the one plane which picked up the mail, by about fifteen minutes. This had been going on for some months before it was learned that because of a detour to drop a couple of mail department employees off at their homes, the mail never made the plane that would in turn connect with other planes at New York and provide the kind of service for which the company had been paying. As a result, although air mail postage to the extent of $300 per week extra was being paid, the actual service obtained was no better than if the mail had been sent via first-class mail at half the cost.

One very large organization in New York City decided, after extensive testing of relative speed and cost of service, that only in exceptional cases would mail addressed to points east of the Mississippi River be sent via other than first-class service. Another equally large organization has a similar ruling in effect, but modifies it to permit the use of air service to three south-central states, east of the Mississippi.

In appraising the relative merits of air versus surface mail, each company must consider a variety of important factors. One of these is the extent to which its mail is addressed to large cities. All large cities have frequent air mail service. There are many small towns, on the other hand, which have no direct air mail service, and where the number of handlings and transshipments which a letter goes through, when sent via air, are such as to materially reduce the speed of service. Another factor is weather. If planes are grounded because of unfavorable conditions, the mail is forwarded by surface transportation, or is held for later plane transportation, pending favorable weather conditions. Many companies are not aware that the post office may forward matter bearing air mail postage via surface transportation if, in the judgment of the post office, equal or superior service will be obtained.

Significant economies in mail operations, improved service . . .

. . . can be obtained only by careful on-the-scene analysis and testing

A basic principle which should be kept constantly in mind is that, normally, mail leaving a business organization on a Friday will reach almost any point in the United States in time for the opening of business on the following Monday morning via first-class service, and that the use of air mail either before a weekend or, in many instances, before a holiday, is unnecessary.

How does a company go about correcting the errors which are costing American industry ten per cent or more of the billion and a half dollars spent on postage, and untold millions of dollars in excess salaries—entirely apart from the impact on a company's competitive standing of inaccurate or delayed mail handling? The answer to this problem involves a succession of

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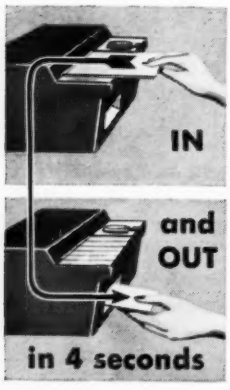

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steps. Business in general is becoming increasingly specialized, and mail handling and postal rates and services are no exception to this trend. A practical approach to the appraisal of a company's mail operations, and the installation of necessary improvements involves these minimum following steps:

1. A searching and objective examination of the position in the company occupied by the mail department.

This does not mean merely a review of the organization chart. It involves the determination, through careful investigation, of exactly where the department "rates" organization-wise in the eyes, both of top management and of line department management. It means further, evaluating the extent to which the department receives support in continuing its operations as economically as is consistent with overall company objectives.

2. An examination of company personnel policies as they affect the direction and staffing of the mail department.

Was the head of the department selected because of special qualifications in handling practices and postal regulations? Is he skilled at working with young people and in providing quick and effective training in order to most fully capitalize on his employees during their usual short tenure in the department? Is he articulate, diplomatic, and skillful enough to present the mail department's "case" in problems where integration of the mail department's and other departments' operations is essential? Has he prepared or been provided with manuals to assist in the training functions, and to insure that essential information concerning postal rates and regulations is readily available, complete, and up-to-date? How capable is he of interpreting these regulations, and in protecting the company against wasting thousands of dollars on unnecessary or extravagant postal services?

3. Measurement and charting of the mail workload of the company, both incoming and outgoing, as well as intra-company, to indicate fluctuations in volume by day, week, month, and season.

Internal mail distribution routes must be established, based on demonstrated needs. Internal pick-up and delivery must be scheduled to insure connections with the most desirable

See the choice you get in these
All-New DAZOR Desk and Table Lamps

Lighting in keeping with this richly appointed office is supplied by Dazor's Swing-Arm Model 1056 on the desk and a Single-Arm Flexible-Arm Model 1058 in the background. Finish of both is frost-green baked enamel over bonderizing, combined with brass; on special order, frost-tan combined with brass.

For the desk occupant who desires unrestricted control of light location and volume, the distinctive Dazor *Floating-Arm* Model 1057 above is the answer. Its diamond-shaped base has beveled edges. Finish is frost-green; on special order, frost-tan.

Fine Executive Lighting

For a functional lamp that harmonizes with modern office decor, consider the new Dazor Swing-Arm model. It moves easily to the desired position, provides restful indirect lighting over a broad area. Also, examine the new *Floating-Arm* model with its compact reflector, diamond-shaped base and unrestricted light placement.

Smart Decorative Lamps

To illuminate and dress up the smaller desk, reception desk or table, three additional new Dazors provide the proper touch. Flexible-Arm models—both Twin-Arm and Single-Arm—allow wide latitude in arm arrangements. The new Rigid-Standard Dazor is a companion to the Swing-Arm model. These lamps are just right, too, for institutions, dormitories, motels, hotels, TV rooms and dens.

Simplicity of design and restful indirect lighting are characteristics of this Dazor Rigid-Standard Model 1055. Finish is frost-green; on special order, frost-tan. It is a natural mate for Swing-Arm Model 1056.

Air-Cooled for Comfort and Safety

All five new Dazors are incandescents with Air-Cooled Reflectors—comfortable to have around you and safe to touch. Helping you see efficiently with individually controlled lighting is the aim of Authorized Dazor Distributors and their Dealers. Ask your supplier now about the newest lamps. Dazor Manufacturing Corp., 4481-87 Duncan Avenue, St. Louis 10, Missouri. In Canada: Amalgamated Electric Corporation Ltd., Toronto 6, Ontario.

Varied arm arrangements are possible with Dazor's Twin-Arm Flexible-Arm Model 1059. Frost-green, combined with brass; on special order, frost-tan combined with brass.

ONLY QUALITY FIXTURES COME FROM THE MAKERS OF

DAZOR FLOATING LAMPS

FLUORESCENT and INCANDESCENT

plane and train facilities, to and from the company. The size of the mail department staff must be carefully appraised in the light of volume statistics to avoid over-staffing. This is a standard problem in all mail departments. If the regular staff of the department is adequate to handle the peaks of incoming and outgoing mail, it is likely that large surpluses of time are available through the middle of the day. This problem can be solved in a variety of ways, including staggered shifts, or lending help regularly to specific departments. Conversely, the mail department staff may be established at a level slightly less than that necessary to handle peaks of volume, and the necessary additional staff borrowed regularly from other departments. Frequently, mail department operations are under the same jurisdiction as are duplicating, addressing, supply, and other communication facilities. In these latter instances, the interchange of personnel between groups to take care of predictable peaks of volume is greatly simplified.

4. A careful appraisal of available space, mechanized equipment, and other physical facilities.

All mailing operations need more floor space per employee than typical clerical operations in order to provide temporary storage space for large volumes of incoming and outgoing matter, and to permit adequate room for sorting, wrapping, tying, and distribution facilities. Mechanization has not been extended into mailing operations nearly as far as it could be. Automatic addressing equipment, collating machines, inserting machines, pneumatic tube systems, and automatic conveyors are only a few of the many possibilities which can contribute not only to substantial savings in labor costs, but also to important improvements in mail handling speed and accuracy.

Employee education essential

5. An intensive and continuing program of educating the employees of the mail department in the intricacies of postal rates and services.

We live in an atmosphere of constantly increasing postal rates, with no end in sight. Among the proposals currently before Congress are some which would increase the rates on certain classes of mail by as much as 60 per cent. It is hard to believe that the typical business organization can afford to be indifferent to increases in the cost of essential functions which are of these dimensions. Hundreds of business organizations, from the smallest to the largest, belong to a variety of mail users' association. It is another one of the peculiarities in the postal "No Man's Land" of American business that some of the companies which make up these associations, and which are most active in opposing rate increases, are, themselves, wasting large sums of money on postage by their failure to take advantage of lower-cost services under existing postal laws.

6. Minimum records of postage expenditures.

Some companies do not even bother to distinguish postage costs from other communication costs in their accounting records. In essential basis for any realistic approach to an improved mail operation involves not only identifying all amounts spent on postage and labor in the mail department, but, further, segregating postage costs by class of service and by the department or individual for whom the postage was expended.

7. Active cooperation with the post office.

It is almost unbelieveable how many companies which are very large users of the mails have no more than a telephone acquaintance with one or two employees in their local post office. Postmasters are invariably pleased to have company representatives call, either for an inspection tour or to discuss mailing problems.

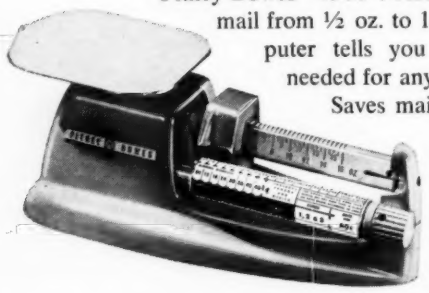
Frequently, the local post office is able to offer constructive suggestions to help speed the handling of a company's mail, and to avoid the waste of postage. The business-post office relationship is an important one in which both parties have a large stake. Most businesses are not nearly as alert as they should be to the advantages of developing a solid personal relationship with their local post office.

There is a distinctive "charm" which characterizes problems involving postage and mailing operations, which is especially appealing to realistic managements in these times of a progressively tighter squeeze on profit margins. Although company mailing functions compare closely in dollar outlay with many other essential operations, the identification and solution of prob-

Big postage saver for the small office

• An inaccurate mail scale can cost you plenty! *Over*weigh, and you waste postage (dozen wasted 3¢ stamps a day runs into $100 a year!). Or *under*weigh, and you cause customer annoyance and ill will (also delays) with your letters delivered "Postage Due."

• Now, any office can afford this new, low-cost, Pitney-Bowes "4900". Accurate, easy to use, it weighs mail from ½ oz. to 1 lb. And the cylindrical computer tells you quickly the exact postage needed for any class of mail, or parcel post. Saves mailing time as well as postage!



• Other PB scales include a parcel post model up to 70 lbs. Ask the nearest PB office to show you. Or write for free illustrated booklet.

FREE: *Send for a handy desk or wall chart of Postal Rates, with parcel post map and zone finder.*

PITNEY-BOWES
Mailing Scales
Pitney-Bowes, Inc., 2991 Walnut St., Stamford, Conn.
Made by the originators of the postage meter ... offices in 102 cities in U. S. and Canada.

The "9 to 5" Test proves it . . .

This rigid 8-hour test was designed to show the greatly improved clerical efficiency obtainable with NCR (No Carbon Required) Paper. The girl on the left used ordinary paper plus carbon paper for copies. The one on the right used *only* NCR Paper. Although these girls were chosen for *equal typing ability*, at completion of the test the girl using NCR Paper had done 30% more work!

NCR Paper is Faster!

NCR Paper was developed recently by the research laboratories of the National Cash Register Company. This amazing paper produces perfect copies without using carbon paper or even any carbonization. NCR Paper is the paper you and business form users everywhere have been waiting for! It gives you:

- **Cleaner, clearer copies** . . . Up to 5 legible copies with standard typewriter, ball-point pen, or pencil. Eight or more neat copies when used with business machine or electric typewriter.
- **Faster, easier handling** . . . No handling of flimsy carbon inserts, no removing or storing.
- **Non-smearing** . . . No smearing or smudging of copies or fingers. Making copies is as easy as putting together 3 or 4 (or *more*) forms and inserting them in business machine or typewriter. Speeds writing of invoices, purchase orders, shipping records, etc.
- **Ends carbon paper disposal** . . . With NCR Paper, removal and disposal of used carbon sheets is eliminated.

Have your forms printed on NCR Paper by your present forms supplier. You'll be amazed how easily it solves the problem of producing multiple copies. You'll get better, cleaner copies in less time!

THE NATIONAL CASH REGISTER COMPANY, Dayton 9, Ohio

989 OFFICES IN 94 COUNTRIES

*TRADE MARK REG. U. S. PAT. OFF.

*National**

ACCOUNTING MACHINES

ADDING MACHINES • CASH REGISTERS

lems associated with them, and the achievement of substantial savings, is far easier than it is in the case of other major activities. A comprehensive review of mailing practices and postage expenditures invariably takes far less time than would, for instance, a systems or organization survey of any other function of comparable importance. Frequently, corrective action can be taken, literally, overnight, and may involve no more than electing a different class of postal service to do a given job from the one previously used. In fact, the reaction of some managements after a review of this "No Man's Land," resulting in substantial economies and service improvements, has been, "How long has this been going on?"

Order processing—

(*From page 25*)

tape—a "sending" tape—is punched in one continuous strip. It is this second tape which actuates the plant teletypewriter for feeding the information back to New York. During this sending period, tabulating stops on the machine halt the action at specified points on the sending form for plant employees to enter the variable information.

At the New York office: Prior to the designated receiving time, another special form, practically identical to the form used by the plant to receive the prime order material, is placed on the machine. This special form includes an invoice work sheet on which extensions of unit price are computed; copies of the completed form are sent to salesmen and the stock record and accounting departments.

The order, then, is in transit to the customer. The first tape, initially and carefully prepared in New York, has become the master record of the order, setting off the chain reaction in the plants that finally ends in New York, the point where it started.

By means of utilizing six special forms in New York, and five in each plant office, from eight to ten typing procedures have been reduced to one. The forms, incidentally, were prepared by Trinity in cooperation with The Standard Register Co., Inc. The task of planning and designing the forms, Trinity reports, was "intricate and difficult," since no precedents were available as guides. In the New York office, these forms consist of two different order forms (one each for bag or paper items), two invoice forms, message form and a separate receiving form for the Newark plant. Each plant has two receiving forms (for bag or paper items), two sending forms and a message form.

According to the firm, the benefits accrued from the teletypewriter-private line system are numerous. Possibilities of lost sales and inaccurate inventory control, for example, are eliminated, since transactions are kept current and shipping dates may be recorded by New York in advance of actual shipment. A greater latitude in production planning and more speedy and reliable sales analyses also are provided by use of the system. Too, Trinity is able to keep tabs on order movements more closely than had been possible in the past, and the firm adds that by supplying customers with neat, correct invoices in record time, customer relations have been improved appreciably.

From a cost accounting standpoint, the system is "foolproof." Allowing as it does for a consecutive numbering set-up, the system virtually precludes any likelihood that an employee will not invoice all orders promptly and correctly upon receipt. The readable tape produced in plant offices enhances referrals to past orders, and the

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She uses EraserStik
She's the apple of the boss's eye
Never underestimate the importance of a good secretary. When she takes a few days off, the Boss acts as though he were adrift in the Atlantic.
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7099 & 7099B gray, all-utility EraserStik for pencil, ink or typewriting.
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Let EraserStik help you become the highest-paid Secretary in your office.
With brush 20¢
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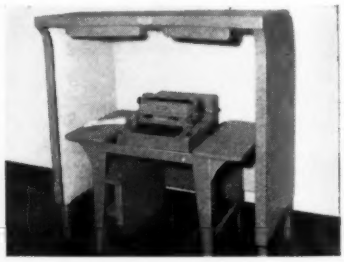

Jangled nerves from machine NOISE is unnecessary!

You can place NOISY modern business machines anywhere—without driving people crazy. You need not tolerate such noise.
SOF'TONE Acoustinets DO NOT silence machines—but they do quiet the noise to a comfortable working degree.

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Results guaranteed—Or You Do Not Pay!

Write for details. Give machines, makes, models you use and measurements.

Gates CO.

ACOUSTINET

AMERICAN STANDARD BUILDING
431 BUFFALO 7, NEW YORK

EXECUTIVES - tear out this page and mail today!

THESE 12 FIRMS SLASH COSTS WITH P-A-X *business telephone systems*

It's easy to learn more about the P-A-X way to improve communications and hold down operating expenses. Simply check the case histories you want, tear out this page and mail it to us. Why not do it now?

You'll see exactly how these twelve top organizations keep rented switchboards free for outside calls . . . handle "inside" calls via P-A-X, in a split second . . . provide immediate, private, person-to-person contact between all departments . . . cut the high cost of rented telephone equipment . . . save time and money.

Draw upon this rich source of ideas—check as many as you like!

☐ **1774.** How a $180,000,000 financial institution, Talman Federal, improves customer service. P-A-X telephones unite all departments for fast, convenient customer service.

☐ **1764.** Revere Copper & Brass keeps company-wide control of operations, reports new efficiency, greater time-savings with plant-owned P-A-X telephone system.

☐ **1770.** How Glens Falls Insurance Company saves countless steps, cuts paperwork, speeds operations with P-A-X inside telephone system.

☐ **1766.** How Crown Cork & Seal Company speeds communications and saves money with its privately owned P-A-X business telephone system.

☐ **1771.** How Pheoll Manufacturing Company co-ordinates and speeds its operations with P-A-X inside telephone system.

☐ **1773.** For over 38 years, Bunte-Chase Candy Company executives have enjoyed fingertip control of operations and production with the help of P-A-X telephones.

☐ **1769.** How plant-owned P-A-X telephones sharpen efficiency, conserve manpower for Detroit Hardware Manufacturing Company.

☐ **1768.** How Alexander Film Company co-ordinates scores of operations, many departments, with its P-A-X business telephone system.

☐ **1763.** How the L & N Railroad links system-wide operations directly through its own unified P-A-X telephone network. Company officials report striking savings in time and money.

☐ **1762.** How Jacob Ruppert Brewery maintains close control over every brewery operation with its own P-A-X business telephone system.

☐ **1761.** In the business of running Mumford High School, P-A-X inside telephones provide immediate private contact between persons in all departments.

☐ **1772.** At St. Francis Hospital, inside calls continue without interruption, even if emergencies swamp the city telephone lines.

AUTOMATIC ELECTRIC

A member of the General Telephone System - One of America's great communications systems

GENERAL SYSTEM

MAIL THIS ENTIRE PAGE - RIGHT NOW!

AUTOMATIC ELECTRIC SALES CORPORATION
Northlake, Illinois

Please send me the case histories I have checked above.

Name_____

Firm_____

Address_____

City_____ State_____

filing system in operation curtails loss of records and transmission of "correct" information on the wrong order.

Apart from transmission of order processing information, the machines also are used to relay inter-office messages and queries at specific periods during the day. At alternating intervals, New York will send questions—each designated by number and date—to its plants, and next morning the answers and other data are received. Likewise, the plants may ask questions of the New York office or correspond with each other directly, and the reduction in telephone calls is significant.

Since plants may turn on the machines in New York, daily summary reports are received by the Manhattan office during the night and can be checked by management as soon as the office opens. These summary reports list such vital information as machine number (for machines producing a specific type of bag), size of the bag, brand or trade name of the bag, machine hours used, number of bags produced, size of paper run, number of rolls used, and total weight of bags produced for the preceding day's operations.

Another development engineered by Trinity in connection with its new system is the "Revolvoform," a metal wheel containing six compartments which house the six different forms used by New York in teletypewriter operations. Two Revolvoforms are placed directly behind the machines, and a mere spin of the wheel brings to the operator the compartment containing the form desired. Previously, the operator had to leave her machine and scout up the correct box of forms, select one form at a time, and wind it into her machine. Now, however, the forms feed continuously into, or out from the machine while the teletypewriter is sending or receiving.

Each machine is capable of typing 125 words each minute, and both can operate without the monitoring of an employee. All he need do, whether he works in Manhattan or in one of the plants, is to insert the proper form into the machine at the proper interval; the remainder of the job of sending and/or receiving information is automatic.

Enthusiastic about the system, and particularly the fact that operational costs are practically nil, the Messrs. Prager and Liebes have proved again that automation is definitely *not* a tool for only the large, multi-million dollar corporation. With an emphasis on ingenuity and farsightedness, they have guided an integrated data processing system from its inception, and, indirectly perhaps, indicated the success which the small business may expect from carefully planned, carefully designed data processing units.

Royal McBee opens new Grand Rapids office to house two sales divisions

New centralized offices of Royal McBee Corp., combining operations of the Royal Typewriter Sales Division and the Data Processing Equipment Sales Division, have been opened at 353 Fuller Ave., Grand Rapids, Mich. The new office includes 4,000 square feet of space, more than double the space formerly required to house these two facilities in separate locations in the city.

In other Royal McBee news, plans to build a new Research and Development Center in the Hartford (Conn.) area have been disclosed by President Philip M. Zenner.

Swifty, thrifty numbering machine

Force model 150

Handles most every office numbering job quickly, inexpensively. Automatic — consecutive, duplicate, repeat; 6-wheel capacity. Sturdy frame, easy action, smooth operation. Prefixed letter wheel when desired **without extra cost.**

Nine stock combinations, all at one low price!

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Most Important Business Show Ever!

The 1956 National Business Show went way beyond anything ever held before: ★ Most Important in number of exhibits ★ Most Important in attendance ★ Most Important in enthusiasm.

...and the 1957 Show promises to be still more important.

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All the industry exhibits—All management attends
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New York Coliseum, Columbus Circle, New York
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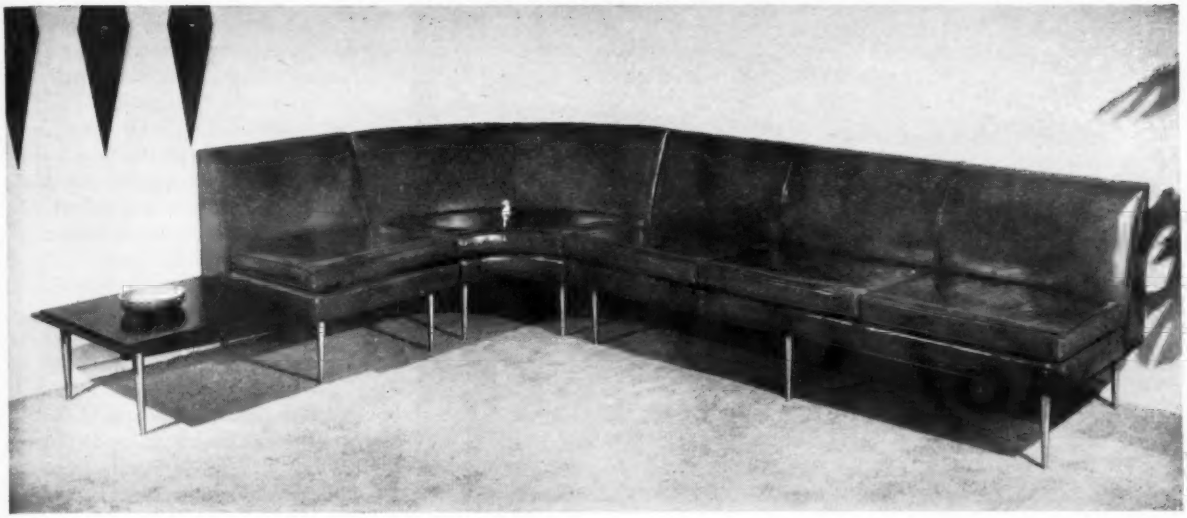


Introducing Perimeter by Marble

Here's Modular Lounge Seating with infinite arrangement and decorative flexibility.

• Perimeter wall-saver lounges are equally at home in reception areas, lobbies or private offices. Wherever used, they extend a gracious invitation to your office guests to relax on molded foam rubber, comfort cushion seats.

These graceful modular units can be used as individual pieces or combined for desired decorative or functional effect . . . as attractive room dividers to break up large areas, to improve traffic flow. If you have a small space problem, you'll find Perimeter's design the ideal means of increasing seating capacity.

Adaptable Companion Tables
For complete flexibility, Perimeter tables are Free Standing, End Positioned or Inter Positioned. Durable black or white Formica tops are framed in beautiful, hand-rubbed walnut. Tapered legs can be brass, chrome or copper. Underseat support arms are walnut.

Wide Selection of Arm Decoration
5 arm styles to choose from. You can easily achieve any desired decorative effect. While all Perimeter arms have identical, distinctive shapes, their rich walnut frames can be finished with cane or 3 horizontal rods of copper, chrome or brass. All upholstered arms also available.

See Perimeter Lounges at your Marble Dealer's Showroom, or for complete Perimeter description write today to The B. L. Marble Chair Company, Bedford, Ohio.

The World's Largest Selection of Fine Office Seating

Contemporary
Modern
Traditional

Designed with Ageless Form and Enduring Substance

THE B.L. Marble CHAIR COMPANY BEDFORD, O.

Production control problem solved by use of single selective data duplicator

THE AMERICAN District Telegraph Company, which used to have a widely scattered control system with many re-transcription points along the line, recently decided to reorganize the creation and distribution of its manufacturing directives around a new centralized and standardized system.

Result: an increase in the effectiveness of its production control; virtual elimination of human error; and the saving of valuable time and effort in the preparation of forms.

A leader in its field for more than 80 years, ADT supplies electric protection services to 61,000 subscribers in more than 1,800 municipalities from coast to coast. It designs, manufactures, installs, maintains and operates Underwriters'-approved systems to safeguard life, property and profits against fire, burglary, holdup and other hazards.

ADT employs an average of 4,500 workers in its headquarters in New York and a plant in St. Louis, most of whom are engaged in the manufacture and assembly of the electric and electronic devices that the company sells. The protection devices and systems used by ADT in its nationwide network, served through central stations in principal cities, are also manufactured in New York headquarters.

Because many of ADT's products are produced at different times, for different district offices, in different quantities, production control in this company tends to be a complicated paperwork procedure, as a brief look at ADT's previous method will show.

The majority of requisitions for parts and products originated in the district offices of ADT and were then sent into the home office where a set of detailed forms containing all relevant data was prepared and submitted to management for approval to manufacture.

The "request for approval" itemized job number, date, delivery requested; quantity, description, estimated unit and total cost of the item; and gave a breakdown of estimated cost of labor, overhead, material, actual cost of same, and status of stock on hand. With those data itemized, the request was sent to the Ordering Supervisor, Superintendent of Supplies, Asst. to General Superintendent of Materials and Manufacturing, the General Superintendent, and finally to the vice president for individual approval.

Constant transcription required

Upon approval, a copy of the request was released to the engineering department where the necessary drawings were supplied. Other copies were then sent to the Production Control Division so that the necessary individual work orders could be prepared and the material ordered to make the parts.

In the Production Control Division, clerks then transcribed time and machine data, along with material requirements, from a Standard Methods Data Sheet onto the work orders, thereby producing production records cards, job route copies, inspection copies, office copies, and delivery copies.

From data shown on the original "request form" (delivery requirement date), the Production Control Division would then schedule the job to meet the required date and create a detailed Production Schedule Load Card detailing the time on each operation.

Other forms, such as the Operation Card itemizing the operation description, set-up and running time, were created in the Production Methods Section. Job time records, and a form listing the sequence and description of operations, tools required, machine number, speed and feed of machine, etc., were also prepared.

The directives and records that ADT operated with at this time, while complex and adequate, by no means provided all the operational forms that the company would have preferred

using. Yet the creation of additional control forms under the prevailing system would have caused an excessive clerical burden, and would have complicated rather than simplified the company's production control system.

As it was, standardization was being sacrificed for necessary working data. With each of the forms being made up at a different point in the organization, there was a constant necessity to re-transcribe the same data to different forms. This in turn made it imperative to watch and check carefully for human error after each re-transcription.

Again additional forms had to be created in the Production Control Division so that the job could be controlled in its progress through the shop. Here too, such *constant* data as job numbers, parts numbers, materials numbers etc., had to be re-transcribed onto individual job tickets.

When, for accounting or research purposes, it became necessary to maintain another record, another form had to be created and the *already recorded* data had to be clerically re-transcribed.

In management's eyes, the problem became one of eliminating duplication of effort, cutting down on the re-transcription points with the possible incidence of human error, and of tightening up the production-control system so that the necessary controls could be centralized, standardized and expanded without the expenditure of additional time and effort.

With centralization and standardization as the keys to the situation, ADT's management began looking for means to implement a simplified and expanded control system. Ideally, the solution would have been provided by one master control form which could then be reproduced in the form of tailor-selected parts, each of which would act as a specific job directive or record.

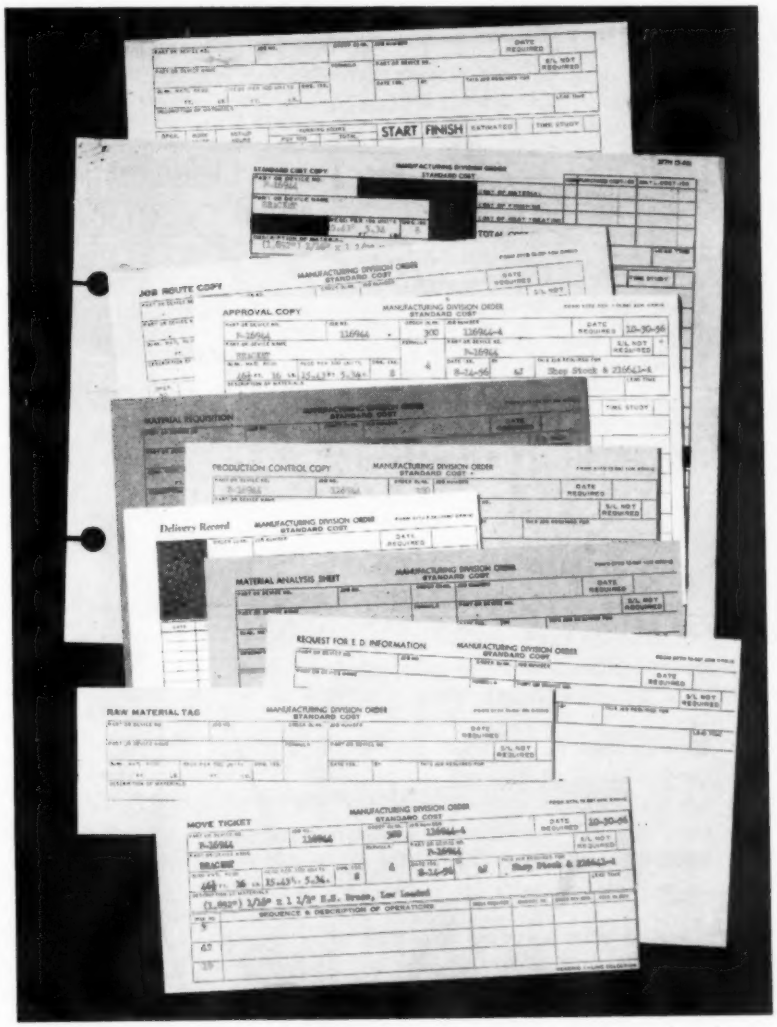
After considerable study and work with the systems experts of Ormig Selective Data Printers, it was found that such a unitized yet versatile control system could be realized for ADT.

Basis for the new system was to be a single-station selective data printer which can duplicate everything which is on a given master, or—from the same master—duplicate only selected data which are condensed on single-item tickets.

By the use of a single master to produce a series of directives—or job tickets—each of which describes a different operation, and each of which also contains certain constantly required information which is common to the entire job, ADT was able to achieve its much-wanted centralization and standardization of data while at the same time speeding up the creation and distribution of directives and eliminating the human element in the re-transcription process.

In the Ormig process, the common information is included in the heading, and the individual operations are enumerated below in the form of a list. From this master, the printer will produce a series of tickets, each with the common heading, but with just one or more selected operations on each ticket. Items which are widely separated on the master can be made to appear condensed and contiguous on the individual tickets. In this way, selected data relevant to specific job performances appear without data that pertain only to another specific job.

The machine is so designed that it advances automatically from line to line, and all the operator has to do is feed the necessary number of pieces of paper, after properly setting the controls. Functioning on mechanical principles, the machine employs a series of heavy-duty cams which are shifted in and out of position by the setting of control levers and number windows at the front of the machine. These cams cause the impression roller to move up and down as the run-off copy goes through the machine so as to produce only the wanted items. The master is advanced between these items while the run-off remains motionless, so that the resultant copy is



All necessary forms, job tickets, directives, each carrying selected pertinent data, are prepared from one master

condensed, with the selected items all contiguous on one single-item ticket, even though the items have been selected from the top, middle and bottom of the master.

For ADT, then, the major step under the new procedure became the preparation and design of a comprehensive master. This task was delegated to the Production Methods Section, which utilized basic data collected over a period of years by the Standard Cost and Production Methods Sections. Both sections cooperated in this project, because previously Production Methods had not been concerned with costs, and Standard Cost had as its province only the dollar value of an item.

Once the basic master—still without individual project entries—was completed, it became the centralizing point for the entire job. From there on in, regardless of where directives and data originated the had to be unitized and standardized on this one master.

As a first step in this centralizing process, basic information that previously headed the "request form", such as job number, parts to be ordered, quantity of parts, formula to be followed, etc., is now penciled in right on the master as the heading. This heading in turn functions as the "order form" that starts the ball rolling.

This *single form* is then routed to the Standard Cost Section. There the raw materials required to make the item are penciled in from its records. In addition, in list form, Standard Cost lists the sequence of operations by number and description, the set-up time, running time per hundred, and the total time for the quantity established as the standard unit to be manufactured.

The penciled master then goes to the Production Methods Section where the data entered by Standard Cost are verified from Production Methods' records and approved. The tools required to produce the job, the machines for the job, and the speed and feed of the machine are also entered here.

With all necessary information entered in pencil on the single sheet, the form is then ready to become the typed duplicating master sheet from which *all directives,* job tickets and records will be produced.

This duplicating master then goes to the operator of the Data Printer who produces, at one point, a complete set of forms needed for beginning-to-end production control. The forms produced from this master are as follows:

Raw Materials Tags
Delivery Tags
Material Requisitions
Request for Engineering Department Information.
Material Analysis Sheets
Move Tickets
Production Control Copies
Manufacturing Division Copies
Inspection Division Copies
Approval Copies
Job Route Copies
Standard Copies

All are produced in individual quantities as required.

This set of forms, centrally created and standardized, notifies everyone concerned about the job. More important, it provides for each work station and job performer along the way only the information that is relevant to that particular phase of the entire project.

By use of the new system, ADT has been able to eliminate the element of human error always possible with

NEW
DIFFERENT
YOU BE THE JUDGE—
YOU TELL US IF IT'S BETTER

RAJAH
BRAND
POLY-CELLO TAPE

New RAJAH tape combines cellophane with tough clear polyethylene—and offers a superior transparent tape with the best qualities of both.

- Greatly reduces breakage problem
- Longer life — doesn't dry out or crack
- Stays stuck even in freezing cold
- Shrink-proof — no adhesive ooze after applied
- Resists liquids — oil, grease — fats, water
- Often replaces costly acetate tapes

Best of all — more economical than old-style cello tapes

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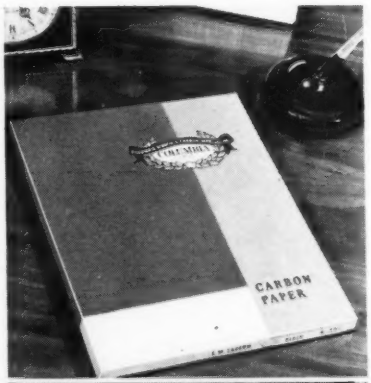

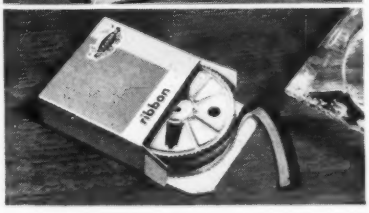

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This standardization of information in one place finally becomes important as an assurance of filling reorders exactly according to specification because it is no longer necessary to copy or transcribe all the directives on the order. Now, the new—or reorder—heading is merely placed *over* the previous order in the Selective Data Printer and the new production order is realized.

As a company ever on the alert for new systems and procedures that will increase its efficiency and service to the public, American District Telegraph believes its new production control system is a major step in the way of both simplification and more effective control.

NOMA—

(*From page* 30)

that don't fit into those categories. Then you will wonder where to put the rest of them. Analyze them first by subject matter, second by the operation involved, and third by the function.

"Let us take a sample. Let us take an inventory form. It is a sheet of paper which you take out to the warehouse and you write down the number of nuts and bolts you have. What are you doing? In a simple English sentence, you are reporting the status of materials and supplies. O. K. You are 'reporting'—there is a function to report. 'The status of'—there is a condition, either an operation or a condition in that intermediate stage. There is a subject—'materials and supplies.' So you have a way of classifying that form. Classify that under the subject 'Materials and supplies.'

"Under the heading CONDITION, put 'status of' and under FUNCTION 'to report'."

Saying that creation of a functional index requires the use of standard terms, Knox called the audience's attention to a sheet of standard terms and their definitions included in a kit distributed at the session.

Forms control, he concluded, must be an integral part of the management program concerned with the control of office costs as an overall object; it must be properly organized with adequate staff facilities to perform the work; it must cover all the forms in the company, and not just the ones with heaviest usage, and it must be based on correctly built control files.

Part Two of the general technical session on forms control expanded the

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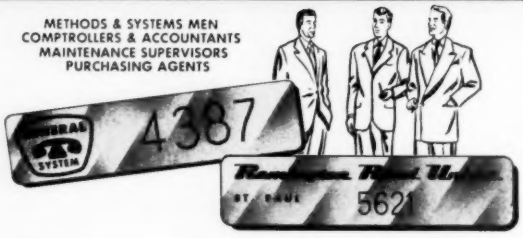

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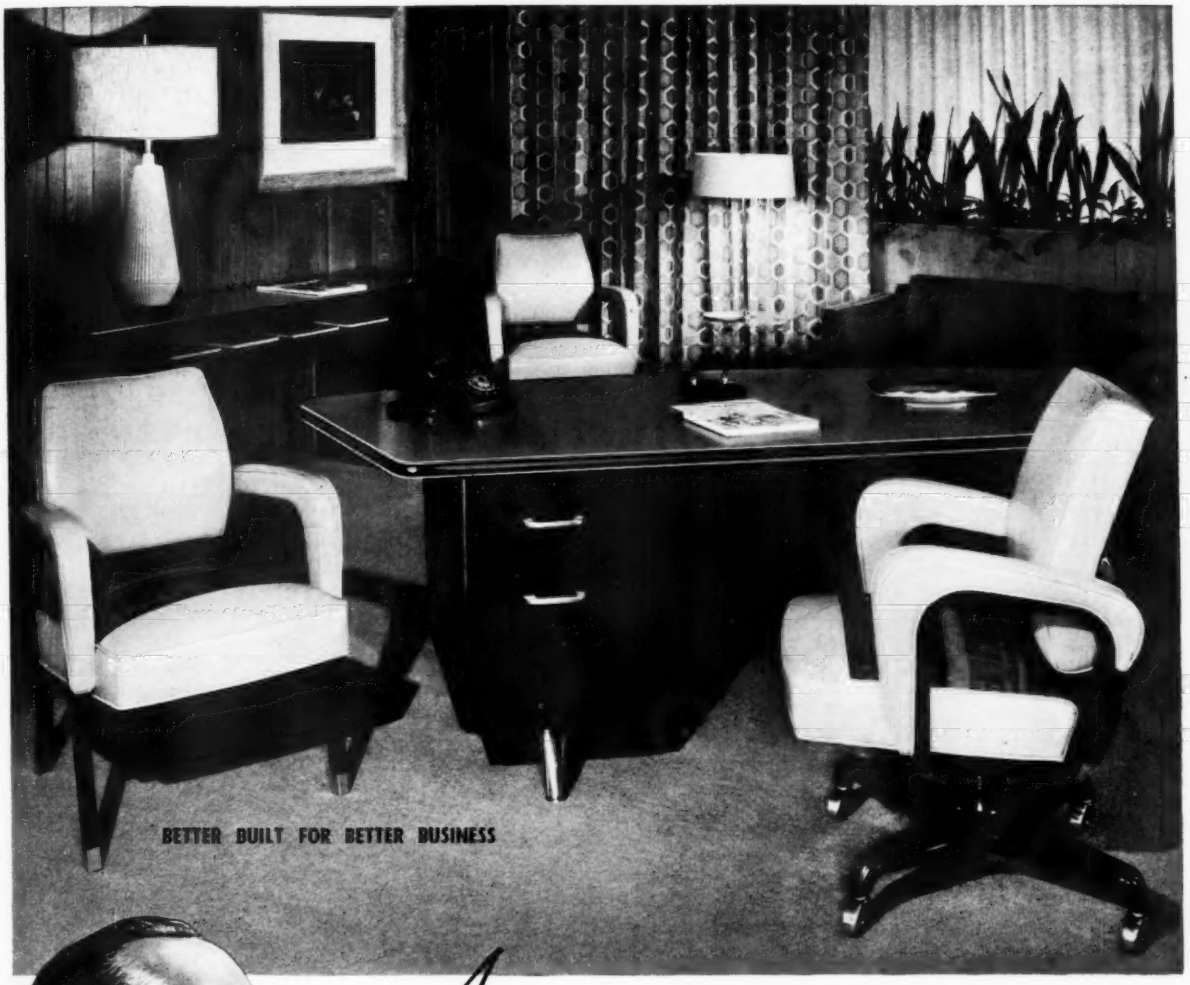

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previous hour's consideration of forms control by analyzing the relationship between forms control and cost control.

Pointing out that most authorities agree the greatest savings achieved from electronic installations is actually achieved by the "system clean-up" that must precede an electronic application, Knox defined as the main sources of savings in the office, forms control, methods analysis, procedures analysis, work simplification, work measurements, and records control.

Following the Knox talk, and divided, as it was, into two sessions, was a panel discussion of methods of economizing on mailroom operations. Speakers at the first session of the "Goldmine in Your Mailroom" were B. E. Sherwood, American Airlines, New York and Howard A. Brooks, Pan American World Airways System, Long Island City, New York.

Naturally enough, the use and misuse of air mail was the main theme of this first session. Pointing out that at least five to seven million dollars of the nation's annual two billion dollar postal bill represents unnecessary expense on the part of business firms that simply don't bother to watch postal costs, Sherwood said that most of this waste is due to lack of understanding of the postal services. Such a lack is equally characteristic of large and small business, he declared.

Brooks reported that the average company could easily save, by more careful use of postal facilities, between five and fifteen per cent of its annual postal costs. Outlining an investigation of an actual company's mailing costs over a year's period, he said that "Corporation X" had an annual postal bill of about $67,000 for its New York office. It retained as postal advisors a consulting group formed by Sherwood and himself, the Mail Clinic, which investigated all its postal practices thoroughly. A great many leaks were disclosed, and the two speakers described them in detail, and the recommendations they had made concerning them. These ranged from eliminating air mailings on Fridays, or holiday eves, to combining all letters going to a single branch office in one package, and shipping it by air parcel post, which will accept letter enclosures.

In conclusion, the two speakers summed up the various annual savings that Corporation X was able to achieve through mailroom reforms:

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"Proper use of registry—$600.00.

"Accurate scales—$500.00.

"Airgrams in lieu of cables—$500.00

"International air parcel post rather than air cargo—$750.00.

"Coordination of mailing habits with post office services—$700.00.

"Using surface rather than air mail for Friday night mail—$180.00.

"Consolidation of mail by destination—$400.00.

"Eliminating special delivery to box and military installations—$200.00.

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Total savings through all these measures—$5,035.00.

The second session of "Gold Mine in Your Mailroom" was given over to a question and answer discussion of postal problems in which the panel of experts answered specific questions about postal operations as a whole, and about the actual working routines in the Los Angeles post office. Panel members were Bert B. Barnes, Deputy Assistant Postmaster General, Bureau of Operations; Gerald Cullinan, special assistant to the Deputy Postmaster General; Charles E. Puskar, Postmaster at Imperial, Pa.; and Otto K. Olesen, Postmaster of Los Angeles. The speakers of the first session, Ben Sherwood and Howard Brooks, also participated.

Other Tuesday speakers were Frank D. Hurt, W. A. Alexander & Co., Chicago, who discussed "Developing Supervisory Techniques;" W. S. Bagby, Pacific Mutual Life Insurance Co., Los Angeles, who talked on "The Human Side of Electronics," and Robert Tannenbaum, of the University of California. Mr. Tannenbaum, in his talk, "Dealing with Ourselves Before

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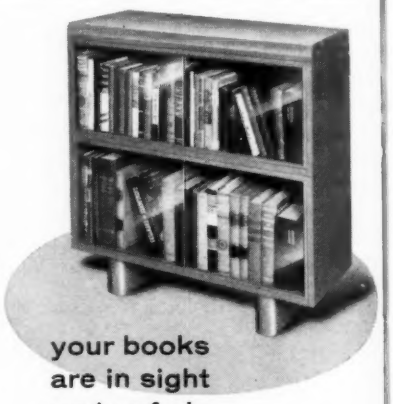

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Dealing with Others" stressed the necessity of giving employees a feeling of independence in order to get them to work most effectively.

"Individuals who place their subordinates in a relationship of dependency may satisfy some of their own ego needs; but they may also reduce the ultimate effectiveness of their subordinates because they do not give them an adequate feeling of independence," Tannenbaum declared.

Program sessions on Wednesday, the closing day of the conference, were entirely devoted to discussions of the potential effects of increased union interest in office workers on the office picture. The first speaker, Hiram S. Hall, Hall and Lange, New York, outlined the background and degree of present activity of unions in the clerical field in his speech, "Target for Tomorrow—The White Collar Employee," and he was followed by a panel of four speakers on "Office Unionization."

Panel members were Robert D. Gray, California Institute of Technology; Richard W. Lund, Latham & Watkins, Attorneys, Los Angeles; Paul Prasow, University of California; and Henry K. Swenerton, Gladding, McBean & Co., Los Angeles.

All four speakers took the new union interest in clerical workers seriously, and seemed to feel that eventual unionization of white collar employees could only be forestalled by imaginative management action which would give workers all the values through company policy and action that they might possibly achieve through unionization.

"The best way to avoid a union is to act as if you had one," Swenerton advised the group of managers. "In any disputes with employees, ask yourself if you'd make the same decision if you had a union steward sitting across the desk from you."

In question and answer session, Lund said, in reply to an audience query on ways of detecting the first indications of union activity, that it was hard to tell in an office group, because particular office workers who may form the nucleus of a collective bargaining group are usually contacted at their homes by union organizers. A sudden increase in the number of confidential conversations between groups of employees is often a signal that one or two workers have been converted and are trying to organize the others, he declared.

Never try to "bust a union" if it's already established in your office, the speakers warned in reply to a query as to how workers might be wooed away from a union after they had joined one. "Keep your communications with your employees as open as possible, treat them as fairly as possible," was the advice of Swenerton. Gray added that unions may themselves become self-defeating in a particular situation because they become too involved in their national and international aims, and forget the specific interests of the members in one particular place. Particular instances have been benefit plans, he said, where the union, because of pursuit of some large national goal of its own will not agree to a particular plan submitted by management. Non-union people may profit through the plan; the union members can't benefit until their union accepts it for them.

In advising how unionization might be forestalled, Prasow said that most employees share major wants. Identify these wants, satisfy them as much as

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you can, and then encourage expansion of the areas of distinction between clerical and factory workers, he advised. Emphasis on career possibilities in clerical work is also helpful since employees anticipating eventual movement into management tend to shun union activities, he advised.

Lund repeated his earlier theme: if management will give its workers as much as the union can possibly promise them, and do it intelligently, there's no reason at all why it can't hope to forestall unionization indefinitely.

"Domination, paternalism, rigidity, remoteness all encourage unionism," according to Swenerton. "Good communications are vital from the management viewpoint. See that all your company policies, all your company benefits are properly presented and interpreted."

Gray summed up the group's advice when, after urging the audience to "read more than one book" on unionism in preparing for its possible entrance into their offices, he said of the chances of management keeping unions out of the office field:

"It's up to you."

The unionization panel, the last technical session of the conference, was followed by the annual luncheon, final conference event. Other social events of the conference included the Chapter Presidents Dinner, on Sunday evening, May 12, and the Annual Banquet, held Tuesday evening, May 14. Speaker at the banquet was W. H. Gove, E.M.C. Recordings Corp., St. Paul, Minn., who told the audience why "You Make the Difference."

The banquet was the scene of the presentation of NOMA's Leffingwell Medal and Fellowship Award, given annually to the NOMA members who have respectively made "outstanding contributions to the profession of office management," and who have "risen through the ranks of office management to a position of high company responsibility." Winner of the Leffingwell Medal was Irwin A. Herrmann, general manager of Servel, Inc., while the Fellowship Award went this year to Paul W. Goodrich, president of Chicago Title and Trust Co.

All technical sessions and social events of the 38th International Conference were held in Los Angeles' Statler Hotel, while the business show, which remained open for one day beyond the close of the conference, was held in that city's Shrine Hall.

Six-month report—

(*From page 22*)

paper tape, punched cards, and conventional office machines adapted to these media can offer a high degree of automatic processing power to small or medium sized companies.

In a way of course, it is the new emphasis on systems and automation in the office and in business in general that is responsible partly for the reaction setting in against the alleged changes in human values being wrought in the name of business. For while scientific methods and measurements can be used for processes, they cannot necessarily be used for human beings. And certainly they cannot be used effectively for individual human beings—there are too many variations between the two most similar people ever born for that to be true. Yet business, impressed with the tangible accomplishments of scientific methods in the world of things, of tangible, non-varying products and processes, has too often made the mistake of assuming that human qualities can be subjected to the same checks and controls. Since they cannot, goes the argument of the new opposition, people try to conform to the arbitary characteristics business has set up as the desirable norms — and in so doing become to a degree those norms. But the norms, so the argument goes, are not the people who give life and vitality to a business or any other enterprise. They are the routine workers; the routine executives, competent to carry out, but never able to create or blaze new trails.

The other apparently unrelated, but actually connected major trends discernible during the year so far are

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a constantly increasing emphasis on long range planning and on decision-making ability. Long range planning has of course always been a necessity, but with the advent of computers, and the possibilities they offer for solution of problems that could not before be attempted, the necessity for planning years — even decades — in advance has become much more pressing in competitive terms. Because one company can make fairly secure and reliable plans for a long period ahead, plans which can cover almost all foreseeable contingencies, it becomes necessary for every other company in competition with the first to attempt to do the same.

But the great aids to planning and decision-making in a way make the decision-making responsibility itself a more important one than it has been in the past—or at least a more irrevocable one. The farther ahead one plans for the future, the more one is bound by the decisions made. They must be correct — or at least largely correct — and they must be adhered to. So to a degree the new necessities also play their part in the reaction that is setting in against conformity, against "playing it safe," against merging with the group working only within the group's definition of what should be done, agreeing with the group opinion always. Decisiveness is not the characteristic of a committee but of an individual. And decisiveness, the ability to weigh the facts and come up with the right decision, plus the courage to stick by the decisions are becoming more and more important as executive qualities.

So the three major trends which have shown up so strongly, while at first appearing to be in complete contradition to each other, actually on analysis, prove to be different facets of one problem: a strong feeling of need for individual energy, action, and responsibility, both in terms of the ultimate good of the organization of which the individual is a part and the ultimate good of the individual himself.

Business — progressive business — even while on one hand it preserves many of the shibboleths that have made conformity such an issue, at the same time is beginning to recognize that the issue exists, and that offsetting features may be needed. At least one large company has set forth as a company policy its belief that the worst danger facing its executives is too great an adherence to a pattern, and that their greatest handicap is an education mainly in techniques rather than in general knowledge. It concedes of course that techniques are essential, but it maintains that general knowledge is too, and that the men it is getting now and has been getting for years do not have enough of it.

They have plenty of "know-how" perhaps but, as with so many other executives today, they have never been stimulated sufficiently to "know-why" —and this might be called the crux of the whole reaction setting in today against some business values which have been accepted to too large a degree by too many people.

Thus, the Bell System is sending its executives to school—not to make them better in their specific jobs, not to any courses related to their specific jobs, or to any other jobs they might ever hold with the company. It is sending them to school to gain the liberal arts background that so many people, plunging early into specialized training, never had. It is seeing that its people know something of the

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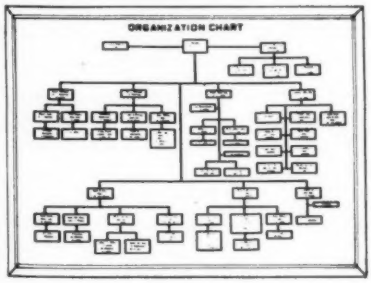

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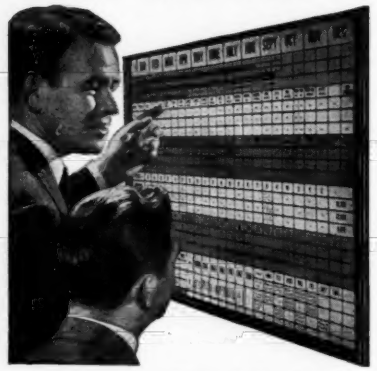

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broad field of human knowledge, the arts and the sciences, literature and languages, as well as the exact requirements of their own jobs. Why? Because the humanities are at least as important in the creation of a good executive, Bell feels, as the specific techniques of a job—and the wide pool of interrelated knowledge and experience represented by a good liberal arts curriculum is perhaps even more important. Moreover, the higher the executive level, the more important becomes the broad pattern of knowledge; the less important the specific techniques of a particular job. A president of a company may perform every action in his working life in a completely different fashion from his opposite number in another company —yet each company will be equally successful. The top jobs are done by individuals in other words, individuals whose work patterns may be entirely different, but who are equally effective, each in his own way, his own style, pursuing his own drives and objectives.

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"3. To motivate the participants in the program to accept the concept of intellectual activity as a never ending process to be continued through their lives.

"4. To balance with a humanistic background the almost complete attention generally given by younger men to the business of acquiring technical knowledge and competence as a result of working in an atmosphere of intense competition with other individuals.

"5. To offset a tendency to overconformity, which is bound to occur in a business which is highly specialized and which promotes almost entirely from within the organization."

This program, set up in 1953, is serving as the nucleus for more and more similar programs differing in content and length, but aimed at the same basic objectives—to broaden the perspective, and aid the development of a greater degree of individuality among the participants.

So here again is recognition that those who view with alarm the present trend within business are not just non-business alarmists; many of the most progressive business leaders are themselves beginning to adopt measures aimed at offsetting what they seem to feel is a real danger.

This in itself of course, is a healthy sign; an indication that if there has been too much of a standard pattern developing in recent years, that at least it has developed so fast and so rapidly that it has set up a counter-reaction and a strong one. That the counter-reaction may be coming none too soon is indicated by the fact that one of the strongest feelings evident at last month's meeting of presidents at the first trial of the American Management Association's new business "war game" (see *Office Management*, June issue) was a feeling of refreshment and progress when they found they were arguing on equal terms with their fellow team members rather than in an environment where they were "the top man"—for every member of each team playing the game was himself a company president or board chairman, so that all were on an equal footing.

Toughness, tenacity, and independent thinking are still valuable—perhaps more valuable today than ever before. And the individuals who form the upper layers of the "organization" are beginning to realize it in very specific terms, even though the forms, patterns and pressures that have created the present situation still exist within their organizations. As they realize it fully a change will be accomplished—even if it must be accomplished by deliberate, planned programs.

The pendulum will swing; compensation will occur. The most successful "organization man" of tomorrow will be the one who is first of all his own man.

Catalogs, Booklets, Brochures

for the office

Packaged Air Conditioners

American Blower Div. of American-Standard, Detroit 32, Mich. New 20-page illustrated, two-color catalog (Bulletin 6125) covering 1957 models in the American Blower line of packaged commercial air conditioning units, with design features and complete physical data for units and all major components included. **(1)**

Desk Appointments

Smith Metal Arts Co., Inc., 1721 Elmwood Ave., Buffalo 7, N. Y. Catalog and Price List (No. 52) describing luxury desk appointments in bronze and modern decorative metals. **(2)**

Drafting Room Tables

Mayline Co., Inc., Sheboygan, Wis. Folder, *The Table Supreme,* illustrating the firm's May-O-Matic line of drafting room tables, bookshelves, and tool and filing drawers. **(3)**

Posture Chairs

Remington Rand Div., Sperry Rand Corp., 315 Fourth Ave., New York 10. Booklet (FF-206), *Gentlemen Be Seated,* a "lightly-treated," illustrated description of the various features of the firm's line of posture chairs; additional booklets include FF-203 and FF-190, on aluminum chairs and steel chairs, respectively. **(4)**

Automatic Typewriters

American Automatic Typewriter Co., 2323 N. Pulaski Rd., Chicago 39. Two booklets, *New Horizons in Fund Raising* and *Quality with Quantity,* covering various uses for the company's line of Auto-typist personalized letter equipment. **(5)**

Employees' Starting Salaries

Industrial Psychology, Inc., Box 6157, Tucson 6, Ariz. *How to Set the Starting Pay of a New Employee,* folder outlining specific methods to handle salary administration on a fair and equitable basis for both new and senior employees. **(6)**

Felt Tip Marking Pens

Cushman & Denison Mfg. Co., Inc., 625 8th Ave., New York 18. Illustrated eight-page, two-color brochure on Cushman's line of Flo-master felt tip marking pens, including list prices on all items. **(7)**

Tape Recorders

Minnesota Mining and Mfg. Co., 900 Bush Ave., St. Paul 6, Minn. Pocket-sized 41-page manual, *The Tape Recorder in Business and Industry,* covering uses of tape recorders in management communications, methods and procedures in factories, and in personnel, sales, advertising and public relations departments. **(8)**

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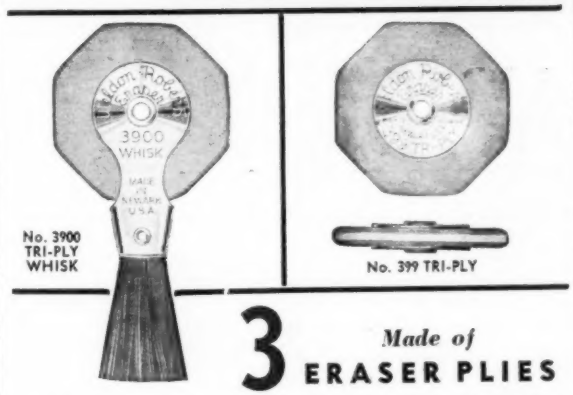

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National Truck Leasing System, 23 E. Jackson Blvd., Chicago 4. Twelve-page booklet offering simplified answers to most-often-asked questions concerning all-service truckleasing, including tax deductible advantages and instructions on how firms may instigate their own truckleasing procedures. **(9)**

Plaster and Acoustical Systems

Zonolite Co., 135 S. LaSalle St., Chicago 3. Eight-page folder describing the firm's fireproofing plaster and acoustical systems for new or remodeled offices, plants and warehouses. **(10)**

Filing Equipment

Tab Products Co., 995 Market St., San Francisco 3, Calif. New 24-page, three-color brochure indicating methods to save time, space and money with use of the company's Spacefinder files. **(11)**

Datatron Electronic Data Processing Systems

ElectroData Div. of Burroughs Corp., 460 Sierra Madre Villa, Pasadena, Calif. A series of illustrated brochures detailing individual business applications of Datatron electronic data processing systems, including payroll (No. 4-05-020); invoice billing (No. 4-05-010); parts inventory control (No. 5-01-110); accounts payable (No. 4-05-030); utility billing (No. 4-04-020), and life insurance (No. 4-02-120). **(12)**

Acetate Film Tape

Labelon Tape Co., Inc., 450 Atlantic Ave., Rochester, N. Y. New two-color folder describing the firm's line of colored and transparent acetate film tapes. **(13)**

Space Dividers

Marnay Sales Div., Rockaway Metal Products Corp., 1270 Broadway, New York 1. Manual, *It's Easy to Install Partitioner,* detailing steps necessary to install Marnay's "Partitioner" space dividers. **(14)**

For further information, use Reader Inquiry Card on page 90.

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ADVERTISERS' INDEX

Acco Products Div. of Naster Corp 88
Agency—La Porte & Austin, Inc.

Advance Floor Machine Co 87
Agency—Vance Pidgeon & Assoc., Inc.

All-Steel Equipment Inc 79
Agency—E. R. Hollingsworth & Assoc.

American Automatic Typewriter Co 57
Agency—Frank C. Nasher, Inc.

American Lithofold Corp 60
Agency—Burlingame-Grossman Adv.

American Telephone & Telegraph Co 3
Agency—N. W. Ayer & Son., Inc.

Automatic Electric Sales Corp 71
Agency—Proebsting, Taylor, Inc.

Bassick Co., The 87
Agency—James Thomas Chirurg Co.

Beach Publishing Co 86
Agency—Francis Adv. Agency

Blickman, Inc., S 83
Agency—Hicks & Greist, Inc.

Can-Pro Corp 86
Agency—Ramsthal Adv. Agency

Celotex Corp., The 13
Agency—McFarland, Aveyard & Co.

Changepoint, Inc 81
Agency—Gibbons Adv. Agency, Inc.

Chesley Industries, Inc 76
Agency—Les Strang Associates

Columbia Ribbon & Carbon Mfg. Co., Inc 77
Agency—E. M. Freystadt Associates, Inc.

Comptometer Corp 8
Agency—Henri, Hurst & McDonald, Inc.

Convoy, Inc 84
Agency—Red Farrall, Inc.

Dazor Mfg. Corp 67
Agency—Watts Adv. Agency

Dennison Mfg. Co 14
Agency—Batten, Barton, Durstine & Osborn, Inc.

Dewberry Engraving Co 86

Dick Co., A. B 10, 11
Agency—Fuller & Smith & Ross, Inc.

Diebold, Inc. (Flofilm Div.) 15
Agency—Ritter, Sanford & Price, Inc.

Eastman Kodak Co. (Business Photo Methods Div., Verifax) 37
Agency—J. Walter Thompson Co.

Esterbrook Pen Co., The 59
Agency—Young & Rubicam, Inc.

Faber-Castell Pencil Co., Inc. A.W 70
Agency—J. M. Kesslinger & Assoc.

Fairgate Rule Co., The 86
Agency—Gene Armstrong Adv. Agency

Force & Co., Inc., Wm. A 72
Agency—Philip I. Ross Co.

Friden Calculating Machine Co., Inc .. 50, 51
Agency—J. Walter Thompson Co.

Gates Acoustinet Co 70
Agency—Warman, Robins & Gorham, Inc.

General Tape Corp 76
Agency—E. T. Holmgren, Inc.

Globe Wernicke Co., The 80
Agency—Strauchen & McKim Adv.

Graphic Systems 84
Agency—Diener & Dorskind, Inc.

Guide System and Supply Co 78

Haloid Co., The 12
Agency-Hutchens Adv. Company, Inc.

Hauserman Co., E. F 6
Agency—Meldrum & Fewsmith, Inc.

International Business Machines Corp ..... Second Cover
Agency—Benton & Bowles, Inc.

Invincible Metal Furniture Co .. Fourth Cover
Agency—Klau-Van Pieterson-Dunlap, Inc.

Johns-Mansville Corp 7
Agency—J. Walter Thompson Co.

Lindy Pen Co. Inc., The 86
Agency—Mike Gold Adv.

Macey-Fowler, Inc 4
Agency—Givaudan Adv., Inc.

Management Control Charts Co 83
Agency—Kencliffe, Breslich & Co.

Marble Chair Co., B. L., The 73
Agency—Carr Liggett Advertising, Inc.

Marchant Calculators, Inc 18
Agency—Foote, Cone & Belding

McBee Co. The Div. of Royal McBee Corp. 9
Agency—C. J. La Roche & Co., Inc.

McGraw-Hill Book Co., Inc 82

Metalcraft, Inc 78

Minnesota Mining & Mfg. Co., Thermo-Fax 66
Agency—Ruthrauff & Ryan, Inc.

Moore Business Forms, Inc 45
Agency—N. W. Ayer & Son, Inc.

National Business Show 72
Agency—Robert Conahay, Inc.

National Cash Register Co., The 35, 69
Agency—McCann-Erickson, Inc.

Office Management 62

Office Products, Inc 89
Agency—Sales & Merchandising Counselors

Ozalid Div. of General Aniline & Film Corp 63
Agency—Benton & Bowles, Inc.

Pitney-Bowes, Inc 68
Agency—L. E. McGivena & Co., Inc.

Roberts Rubber Co., Weldon 85
Agency—La Porte & Austin, Inc.

Rudd-Melikian, Inc 61
Agency—Gray & Rogers

Scriptomatic, Inc 60
Agency—Roland G. E. Ullman Organization, Inc.

Shaw-Walker Co 16
Agency—J. Walter Thompson Co.

Shredmaster Corp., The 80
Agency—Cayton, Inc.

Smead Mfg. Co., Inc., The 81

Smith, Inc., Charles C 83
Agency—Ayres, Swanson & Assoc., Inc.

Smith-Corona, Inc ..... 3rd Cover
Agency—Cunningham & Walsh, Inc.

Tab Products Co 56
Agency—H. M. Leete & Co.

TelAutograph Corp 47
Agency—J. W. Christopher Co., Adv. Agency

Weber Addressing Machines Co 58
Agency—Steetzel & Associates, Inc.

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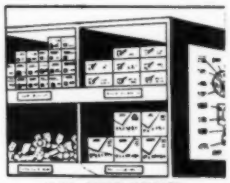

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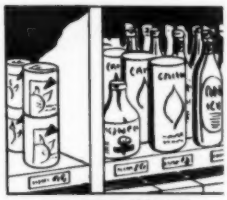

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2nd Cover	35	68	81 CI
3rd Cover	37	69	82 MHB
4th Cover	45	70 AWF	83 MCC
3	47	70 GAC	83 SBI
4	50	71	83 CCS
6	51	72 WAF	84 GS
7	56	72 NBS	84 CI
8	57	73	85
9	58	76 GTC	86 BPC
10	59	76 CI	86 LPC
11	60 SI	77	86 FRC
12	60 ALC	78 MI	86 DEC
13	61	78 GSS	86 CPC
14	63	79	87 BC
15	66	80 TSC	87 AFM
16	67	80 GW	88
18		81 SMC	89

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(Circle respective item numbers)

A–1	B–1	1
A–2	B–2	2
A–3	B–3	3
A–4	B–4	4
A–5	B–5	5
A–6	B–6	6
A–7	B–7	7
		88
		9
		10
		11
		12
		13
		14

Name ..... **Title** .....
Company .....
Address .....
City ..... **Zone** ..... **State** .....
Number of Office Employees (all departments) .....

July 1957 Issue, Office Management

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